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YGIENE AND DIETETICS IN DIABETES MELLITUS

sented to the Section on Physiology and Dietetics, at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7-10, 1898.

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If perfect culture of mind and body was to be had, perfect knowledge of the laws of life, an intellect d body trained, the moral faculties of man in balced order, the human race would not perish under grievous yoke of disease; the youth of man would protected and become more perfect; decay of life uld be blended with happiness of perfect knowlge; life would become more vigorous, disease more note. Life is an entity, a constant growth, a result- waste, a potential energy an eventual expendi-e. No agent has been found to arrest the waste crystallize the tissues of growth and vigor from ay. To do so would be death itself, for life is an essant change, its vital energy dependent upon the s of nature, a neglect of which inevitably proces lamentable results. To prolong the period of l energy, the improvement of the nutrition of the ues is necessary, either by hygiene or by prepar- the proper food for the purposes of nutrition, or oving or preventing those chemic changes in the ues, called decay. The benefits derived from these nciples have extended the duration of life, and it om this irresistible inference—the instruction de- d from experience—that the hygienic and dietetic tment adapted to diabetes mellitus can abridge or long human life. It would be wise had man a stic elixir capable of preserving life, where there been injurious habits and old damages, of rend- g a stream pellucid which is turbid at its source, our nature, having no *Deus ex machina*, must to the proper supervision of that upon which lth and life are dependent.

One great means in the efficacy of hygienic treatnt of diabetes mellitus is *air*. The air influences, variations in the amount or condition of its nor- constituents, by difference in physical qualities, y the presence of impurities. The patient should surrounded by most favorable hygienic influences, use of the mischievous consequences of the dis- proceeding slowly or rapidly according to the stitution, age of patient and circumstances in life. one who has paid any attention to the condition ealth in disease can doubt that impurity of air velously affects the individual in the convalescent . The respiration, and cutaneous emanations of , the impurities from combustion of light and , the effluvia of uncleanliness of rooms and per- demand that the sleeping-room should be well ventilated, removed from any impure flow of air, and that the house should be wholesome and well drained. The patient should pass much of his time in the open air, the action of the sun's rays vitalizing the atmosphere and imparting vigor and energy to the system. During the cold of the winter a glass house with southern exposure is a great comfort. For cleanliness and to preserve a healthy state of the skin, bathe regularly in water not too cold, not allowing the body to be long submerged. After a warm alkaline bath in winter, or a tepid bath in summer, either on retiring at night or arising in the morning a brisk friction or massage, using coca oil, facilitates the removal of effete epithelium, and is conducive to stimulating a healthful action to an otherwise dry and harsh skin. A foot-bath of hot water, with the addition of a tablespoonful of mustard, is very useful where there is fulness of blood-vessels in the head, continued sleeplessness or obstinately cold extremities. Warm flannel next to the skin, and residence in a warm equable climate is an aid to health.

For individual life to continue to exist, the healthfulness of its envelope—the body in which it dwells—must be preserved. So the ingesta, which goes directly or indirectly to the growth, repair or the production of energy in any form, must be administered to insure the proper continuity of the body, its textures, its organs, its processes and actions. Alimentation and beverages are necessary to the existence of all organized beings, but the requisite quality and quantity depend very much upon the circumstances connected with each individual case. It is quite obvious, that to accomplish the best results in the processes of healthy nutrition, the application of dietetic principles is a most prominent feature, and in the widest acceptance of the term it is of primest importance—the corner-stone in the treatment of diabetes. A necessary reform of diet should be had in diabetes. A strict disciplinarian subjects his patient, without reason, to a stringent diet; another, more captious, permits every conceivable latitude. A conscientious, docile patient obeys the strict rule, gets disgusted with mutton or beef, and alimentation in general, consequently is nauseated by a meat diet and abandons it. A capricious, covert one, disregards all necessity, and deceives the animal economy.

The efficiency of diet depends upon the proper elimination of all ingesta containing grape-sugar, cane-sugar, beet-root sugar and starch. The glycogenic function of the liver and its hepatic action on carbohydrates renders food of such assimilative nature injurious, aggravates the glycosuria, and the excretion of sugar gradually increases. A certain, exact determination of ingesta and its effects in reference to carbohydrate metabolism should be outlined and noted. The normal, assimilative action of the liver should be enabled to be approximately defined, and its carbohydrate metabolism estimated, by exclud-

ng the patient from a generous diet and directing a strict diet from ten days to a fortnight. After having followed this cautious procedure, a standard is obtained whereby the effects of a stringent diet can be readily determined.

In many cases, a gradual substitution of articles of a mixed diet, in definite quantities, may be cultivated with advantage, and should sugar reappear, the diet can be duly regulated. In severe cases, carbohydrates should be permitted and results noted. In a large number of diabetics, a pure skim-milk regimen results in a total disappearance of sugar, whereas others can take milk and potatoes, in small quantities, with success, and with slight increase in amount of sugar. Individual idiosyncrasies must be watched and suspected, as some patients tolerate starch in one form better than in another, as bread rather than potato. Many diabetic foods possess an injurious amount of starch, and others are useless and absolutely indigestible, so that the *summum bonum* of diet must be insisted upon with such additions as are judicious. An exclusive animal diet may reduce, or cause the sugar to disappear, but it can not always be tolerated, for appetite will grow "stale," and the necessity of a mixed diet becomes a serious study. In this disease, the nervous system is correspondingly implicated and a rigid devotion to animal ingesta increases the tension, for there is a physical degeneration peculiar to this affection, and a mixed diet is the wisest course to pursue. When thoughtfully regulated, such a regimen is more likely to keep the disease stationary by upholding vitality than by being confined to one diet, while the stomach and system become debilitated with results of innutrition, and sooner or later succumb to the fell destroyer. Milk, when assimilable, is a boon to the invalid. When digestion is apt to be deranged, peptonized milk may be substituted, but the monotony of a milk diet becomes unbearable. Cream, as long as it agrees, may be allowed, and cod-liver oil is a nutriment, particularly where fatty articles are easily retained.

To many of the laity there are certain fixed principles by which this disease must be attacked; and one is that complete abstinence from amylaceous food or any liquid or substance convertible into sugar is necessary. Logically true these premises may be, yet a suitable diet, eliminating all saccharine and amylaceous, sugar-producing substances, strictly speaking, is impossible. There is skim-milk treatment, best used in the incipient stage, causing the sugar to disappear, and an abatement of symptoms as long as the diet is rigidly followed; in others, where disease is persistently established, it is not of any use, despite all treatment. Even in later life, when diabetes is most amenable, fat meats, eggs, soups and fish may be taken daily, to vary the diet as much as possible, taking the hearty meals in the earlier part of the day. The most important article of diet—bread—deprivation of which is illy borne by the patient, is a source of careful thought to the physician—the substitutes of bread are so various, imperfect and injurious. Gluten flour, however prepared, possesses starch. Where extreme discipline is required, the carefully prepared bran, thoroughly washed and free from starch, or bran prepared by the cold-air blast process, may be used. Pavy's almond food, Seegeus' almond food, Camplin's method of making biscuit of bran flour, Kueltz's biscuits of inulin from Iceland moss, are substitutes for bread. When exclusive diet is not determined the ordinary bran may be used.

In the nature of beverages, milk, combined with lime water, soda water, or buttermilk, is good, or a refreshing draught is Apollinaris, Vichy or carbonated waters. There is no water that so alleviates the distressing thirst of the diabetic as Waukesha Bethesda water. Certain mineral waters have long enjoyed an overestimated reputation in diabetes, as the Vichy and the Carlsbad, due to their aperient action on the liver and bowels. Mineral waters in America are legion, and each has its exponent with proofs accordingly.

Use of alcohol in diabetes demands careful attention. If used, non-saccharine wines are prescribed—hock, Bordeaux, and German or French wines, even dry sherries and madeira—but under suitable restriction. Bordeaux claret is preferable to whiskey, and no malt liquors or strong alcoholic drinks should be allowed. Alcohol should be prohibited when it acts detrimentally to the nervous system and when albuminuria is present. With all due regard to alcohol, the animal economy is best without it. The great object in dietetic treatment of diabetes, is to manage digestion, and check or diminish the formation of sugar.

The writer, having confined the paper to hygiene and dietetics, has purposely avoided medicinal treatment, and trusts, however inefficient the line of thought has been, the reader will pardon the meager discussion of a subject most important to the laity. He will now offer a bill of fare, trying to be liberal enough to satisfy the palate of the diabetic, and subject to the blue pencil of the physician in his special case:

PERMITTED.

Meats.—Flesh meats of every variety: beefsteak, beefsteak with fried onions, mutton or lamb chops, roast beef, corned beef, kidneys, broiled or stewed, smoked beef, calfs' head, sweetbreads, lamb fries, veal, tripe, ham, bacon, tongue, sausage, pigs' feet. *Poultry and Game.*—Broiled chicken, chicken salad, game cooked in every way. *Fish, fresh and salted.*—Fish in oil, sardines, spawn, lobsters, oysters, clams, crabs and shrimps. *Eggs.*—In every way, scrambled, boiled, omelets of all kinds, wherein flour, sugar and prohibited vegetables are not used. Cream, butter, cheese, sour milk. *Soups.*—Animal broths, beef, veal, chicken, ox-tail, turtle, oyster broth, clam broth, terrapin, avoiding vegetables inadmissible, and flour and starchy substances, as rice and vermicelli. *Green Vegetables.*—Summer cabbage, turnip tops, spinach, watercress, mustard and cress, green string beans, green ends of asparagus tops, green parts of lettuce, celery tops, sorrel, mushrooms, dandelions, sauerkraut, cucumbers, olives, pickles. Use moderately cauliflower, brussel sprouts, young onions, broccoli. *Fruits.*—Gooseberries, red currants, plums, cranberries, strawberries, cherries—acidity neutralized with soda bicarbonate. *Bread.*—In known amount, made of gluten, bran, almond flour or inulin. *Custard.*—Made without sugar. *Nuts.*—Almonds, walnuts, brazils, hazels, filberts, pecans, butternuts, cocoanuts. Salt and pepper may be used. *Drinks.*—Tea, coffee, cocoa from nibs, mineral waters, soda waters, dry sherry, claret, acid wines, dry sauterne, rhine, moselle, burgundy, chablis, hock, brandy, gin. No malt liquors. Burton, when long bottled; light beer in moderation, also bordeaux. Glycerin may be used instead of sugar in tea or coffee when imperative, but it is wise to eliminate it as a substitute for sugar altogether.

PROHIBITED.

Sweet dishes–sugar in any form. *Bread.*–Wheaten bread, ordinary biscuits of all kinds; cake, desserts made with flour or sugar; puddings and pastry of all kinds; honey, rice, corn, flour, sago, tapioca, arrowroot, macaroni, vermicelli. *Farinaceous or Saccharine Vegetables.*—Potatoes, artichokes, turnips, carrots, parsnips, peas, beans, beets, spanish onions, asparagus, tomatoes, stalks and white parts of cabbage, lettuce, cauliflower, celery, broccoli, radishes. Liver of all animals; nuts, chestnuts; fruits of all kinds, fresh or preserved; jams, syrups, sugars; diabetic foods, sweet pickles. *Drinks.* — Chocolate, sweet wines, sparkling wines, port wine, liquors, sweet ales, mild and old; porter and stout, cider. Milk does not need to be absolutely banished, but if used, use sparingly.

IMPORTANCE OF PHYSIOLOGY AND DIETETICS TO THE SURGEON.

Presented to the Section on Physiology and Dietetics at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY CHAS. G. PLUMMER, B.S., M.D.

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The dimensions of this subject are such that it is impossible to encompass it by the confines of a single article, in a limited time.

The relationship existing between physiology and surgery, in every phase of our profession, is so intimate that, to think or work in the latter without a thoughtful consideration of the former, can never lead to successful results. When we look at what is done by our masters in surgery, we are convinced that they only attained such perfection in their handling of surgical subjects by close application of the very principles of the science. To become merely a flash operator or a mechanic demonstrator of what the human hand, aided by a well-trained eye, is capable of in a dexterous way, may go a long way toward giving that one a wide reputation as a surgeon, but, in the long run, the surgeon is known by his results. The brilliant operator is bound to secure certain excellent successes, but, if he maintains his standing in the major work that comes to him, he can not give the cold shoulder to physiology and dietetics. They are his guiding stars. No definite line can be followed; he must cut according to his cloth, and he who lacks physiologic good sense, no matter how otherwise endowed, is no surgeon. But time will not permit me to go into the minutiæ of the physiologic and bacteriologic laboratories, or into the very essence of physiology itself, and trace out its many ramifications. Such an exhaustive treatise on the subject can be found in any of the most recent text-books, in much better form and more acceptably than I am able to place it before you.

There is no reason why a surgeon should be a better physiologist than a practitioner of medicine, an obstetrician, a gynecologist, an oculist, or any other disciple of the many branches into which the profession has been divided. The very foundation-stone of the science of medicine is physiology; it must be, from its very nature, for surgery is really but a branch of medicine; and all who do work in our numerous specialties, must, by wise legislation, first attain the degree of Doctor of Medicine. Anatomy must be what some might term almost the right arm of the surgeon. But if this be true, physiology is the right arm of anatomy. For, of what satisfaction is it to him who performs an operation, to look over his work, dress the wound, and then to see his patient die because the normal functions of the body go unattended? Is it not physiology that steps in here, takes up the work where the knife left off, and by intelligent management adds another success to the surgeon's credit? The knife in the most skilful hands the world ever knew can do only so much. It may relieve organs of the burden of diseased tissue, it may lop off unnecessary and useless members, but who ever heard of its replacing extirpated tissue of the stomach or intestinal tract, that could perform the functions of that lost? How long would our patients survive if, for instance, the entire alimentary canal were removed? Very true, indeed, sections of great length have been made from the intestinal tract, huge slices have been cut from the stomach, and the patient made an excellent recovery, but, if the physiology of the bowel be destroyed, or even too greatly interfered with, if the destruction of the glands of digestion take place, death comes inevitably.

Thus at the very elbow of the surgeon stands physiology, to warn the too venturesome operator that a halt must be called if he values his patient's welfare. By physiologic forewarnings we come to recognize malignant conditions interfering with alimentation and other functions, and to be forewarned is to be forearmed. These indicate to the surgeon, not only the position, but the character and extent of the involvement of normal tissue, thus enabling him to lend a helping hand to his greatest ally.

Great successes have been recently announced wherein the adaptability of the least remnant of the stomach, left after excision for malignant disease has been demonstrated. Schlätter (vide JOURNAL, vol. xxx, p. 265), Krönlein, Schuchardt, and Langenbuch have related to us their partial or complete gastrectomy, and the duodenum took up the task of playing stomach for the living example, and did it with success.

We do not know all of physiology as yet. Still, without paying it our most profound respect the most brilliant results of modern surgery would come to naught. Thus, with due respect to anatomy, to express myself more clearly, the surgeon must be equipped with two right arms; physiology first and anatomy second.

Were it not the fact that all bodies or engines of use must, in order to perform their necessary functions, be supplied with the proper elements to replace loss and repair damages, there would be very little for the surgeon to do beyond the mere exhibition of his skill and dexterity in handling the scalpel. Then all operations would be successes, and the surgeon would be the only truly great one among us.

The principle, that attention to the physiologic details of all operative work must ever be borne in mind holds good under all circumstances. The operator who willfully violates a physiologic principle, either in the immediate operation or in the post-operative care of his cases, will pay for it as dearly as he who goes contrary to any established surgical procedure. Infection of the intestinal tract, for instance, is as easily accomplished as infection of an open wound, and usually causes more disturbance to the patient than if the operated area became one solid slough. There is not enough attention paid to the ante-operative and the post-operative care of patients, especially

in abdominal surgery. One of the first questions asked by the nurse, when the operation is over, is, "Doctor, what may the patient have to eat?" Often, without waiting to consider the amount of resistance with which the patient may be endowed, the surgeon will say, "Oh, almost anything he wants," thus committing one of the grossest errors of which he is capable. So much has been said and written on the subject of dietetics, in connection with surgical work, and yet so little is accurately known, that it behooves each operator to himself become an investigator; and as his experience becomes greater with the increase of work, he will be enabled to lay down certain principles by which those coming after him may profit.

But the trouble is that as soon as the mere operative manipulation is a thing of the past, the patients usually cease to be an item of interest, except in a perfunctory way, and they are left to the tender mercies of a house physician, a nurse, or an undergraduate. Our surgeons are not physiologists. The matter of experimentation, carried out with strict adherence to scientific principles, is almost unknown to the great majority of them. The application of the simplest facts concerning diet and assimilation is disregarded. The condition of the patient, that element about which so much talk is wasted and so little is known, which we call "shock," is often overlooked. The fact that shock should enter into our considerations in minor operations is scarcely thought of; for to the mind of many an ambitious operator of today, such an element is unworthy of notice, except it be in connection with the invasion of the abdominal cavity. To him, an assault on the abdomen by a route which leads to the capitulation of some of its organs, is the acme of his desire. The terms "laparotomy," "celiotomy," "abdominal section," and lastly "vaginal section," are significant of such visions of greatness and reward to many men that they overshadow all other approaches to a career of usefulness and distinction. To be able to add name after name of successful sections of the abdomen to one's record, seems to be the height of the ambition of many with whom we come in contact. It is indeed lamentable that result cuts no figure. A cure often takes a secondary place in many long lists of statistics. The mere fact that the operated ones live to get on their feet and drag about in a half-dead manner for months and sometimes for years, perhaps with a post-operative hernia also, does not seem to have any influence on him who has his eye on the fee rather than on successful work. If the surgeon, if all practitioners, in fact, were better physiologists, if all physicians paid more attention to diet and assimilation, in the administration of remedies and the care of those to whom they owe their time and their best efforts, the surgeon, specifically, would not reap such rich rewards.

We can not overestimate the great value and importance, not only to one's self, but also to the patient, of a thorough knowledge of the subject of the administration of food, its treatment by the stomach, its assimilation and its final distribution through the proper channels. If we resolve the subject into a question of importance to the surgeon, it comes more closely to him when the matter of dietetics is considered in his care of patients after abdominal operations. One should not forget the all-important fact that the processes of waste occur continually. There can not be a moment of our lives, be we sick or well, asleep or awake, when such waste of tissue does not go on. Repair must take place equally as rapidly, else we lose, so much in fact, that our life is endangered. For this reason regularly feeding the operated one at night is of as much importance as food by day. The vitality must be sustained by the proper exhibition of easily assimilable materials, either by the mouth or rectum, from the very outset. It is a grave error to starve the patient after section of the abdomen, a certainty which experience alone can teach us. It is a fact that must be taken into consideration that the functions of the vasomotor system are abnormally suspended by the shock sustained by one undergoing such a major operation. Consequently, the administration of foods of almost any character, until the equilibrium of the vasomotor system is restored, is most unwise. Usually we look for one to be fully out of shock in from twenty-four to thirty-six hours. Then the stomach is in fit shape to readily seize upon nutriment in small amounts, often repeated, and in a concentrated or predigested form. The intestines will be in readiness to assimilate and convert into proper solution the food administered, and the weakened heart will be buoyed and strengthened thereby, its beats will be firm and full, and of such a quality as to assure us our patient is in good condition.

We so often hear of and sometimes see patients who, it is claimed, die of exhaustion. What is this exhaustion? Too often, it may be, it is but the consequence of a succession of shocks, operative or otherwise, sustained by the individual, which so overpower and outweigh the recuperative ability that what little spark of vitality remains flashes out and they are gone. If this obtunded sympathetic system were taken into consideration at the time of extensive injuries to soft parts, and to the extremities, amputation and operation would not be so hurriedly advised and performed. Shock of operation added to shock of injury, is like feeding fuel to a flame that should be extinguished. Physiologic reaction rarely sets in where a system has been so ignorantly handled. If we would but stop and look into the book of the physical body, on the pages of which we read the rapid, weak, irregular pulse, the total insensibility to pain, perhaps the partial or complete loss of consciousness, the contracted pupil, the blanched face, the pinched, drawn countenance, the sighing respiration, the refusal of nourishment with the consequent craving for water, here we would see, as it were, an open page of the plainest most simple teachings from the book of physiology.

Physiology gives us at a glance the contraindication to operation, and it tells us how long, and to what extent we may pursue our cutting. Who would undertake operative procedure on a kidney without determining, by physiologic examination and investigation, the condition and amount of urinary secretions? It is the test-tube, the microscope and the germ cultivation, in the hands of the physiologists, that have made it fairer sailing for the surgeon, and have removed many obstacles among his onerous duties. Virchow, Pasteur, Koch and numerous others are they to whom the surgeons of the present owe their allegiance. These investigators have made it possible for their *confréres* to make unheard of assaults on man, and have opened up fields of labor for him which seem almost exhaustless. Under the guiding hands of these geniuses, the surgeon cuts here or there, taking out tissue, in one instance for examination, and in another for demonstration, then boldly hews to the line.

This is not the place to give directions for preparatory measures, when abdominal operations are under advisement. Still, I believe that if the patients be well and considerately nourished, even up to the limit of their capacity, before operation be undertaken, their immediate reaction and consequent convalescence would be a matter of much congratulation to them, as well as to ourselves. For it is no longer a question of doubt in my mind that the preparation of the patient immediately before operation has much to do with the outcome of the attack upon his organism.

It would be the height of folly for us to allow a subject to go under anesthesia without a careful examination of heart and lungs, and without having cleansed their economy by the ingestion of large quantities of pure water. Their wholesome, nourishing food need not be denied them until at least twenty-four hours previous to the time of attack. The water really aids greatly in the excitation to the discharge of gastric juices, dilutes the nourishing materials, and increases assimilation. So I would not starve a patient and then sluice him out with gallons of hot water, but I would follow the plan above, and see the operated one come from under anesthesia more quickly, with a stronger pulse, and with less shock than otherwise. I am convinced that one of the most formidable elements we have to contend with in abdominal surgery is that of intestinal flatus. I am also convinced that a great amount of the annoyance experienced by the patient in enduring it, as well as by the surgeon in endeavoring to combat it, might be eliminated by proper attention to the materials which enter the alimentary canal. Gaseous distention of the intestinal tract may occur equally as readily when we have prohibited the ingestion of food as when we have allowed something which will cause fermentation and consequent tympanitis.

I maintain in conclusion that the absolute observance of the physiology of digestion, the proper selection and careful and regular administration of articles of diet for hygienic results, and the study of such foods as are given for their therapeutic value, will minimize such disturbances and contribute greatly to the comfort and recovery of the patient. Without this due consideration for the complex human machinery and its conservation of energy; without a due allowance for the condition of heart, lungs, brain and kidneys, surgery will continue to be largely unsatisfactory both to surgeon and patient.

DISCUSSION.

Dr. L. DUNCAN BULKLEY of New York said that he was indeed pleased that this very important matter had been so ably presented. It was the greatest mistake to regard only the operative side of surgery. The surgeon should be the accomplished, thinking physician, and as such he could save lives which otherwise were often sacrificed. He stated that Dr. Joseph C. Eastman, in the presence of a number of physicians, had stated that during the past few years he had certainly saved some lives by the rigid employment of the plan of giving milk, warm, pure and alone, as just advocated by the present speaker in his paper. This he did, both before and soon after operations, and found that patients rallied and improved as never before. Dr. Bulkley wished to urge again, and most emphatically, the value of this method of feeding in connection with operations.

Dr. E. STUVER—This is a subject of the very greatest importance. In the selection of food for diseased conditions and especially in those cases where surgical shock is a factor to be considered, great care should be exercised to secure foods containing the greatest amount of tissue-building and force producing materials, but such as will throw the least strain on the digestive and assimilative organs and at the same time least interfere with free elimination. Since the great importance and far-reaching consequences of auto-intoxication have been recognized, greater attention is being paid to the excretory organs, and free elimination of toxic materials is now regarded as one of the most important matters in the management of any case. This practice is being followed by excellent results both in surgery and medicine, and many cases, that formerly, owing to improper diet and retained poisons, died, are now being saved.

Dr. PLUMMER in closing the discussion, said the subject was of great importance to him, and ought to be to every thinking physician. His attention had been called to the demand for food by those suffering from shock, by the manner in which dumb animals act when sick or injured. A sick or injured dog refuses food until such a time when his natural appetite calls for it—why should not the human body be supplied on the same principle? The employment of good sense and the following of physiologic teachings should guide us, then our results would be better and more satisfactory.

PHYSIATRICS, OR NATURE'S THERAPY.

Presented to the Section on Physiology and Dietetics at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY C. F. ULRICH, A.M., M.D.

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Nature is, without doubt, the best, the most successful physician, when she is permitted to have full sway and her mandates are obeyed. Almost every disease, every ailment, every departure from the normal condition, exhibits a tendency to recovery. In the human body, as in that of the animal, there exists apparatus for the removal of elements that disturb the healthful working of the internal machinery; such as the depuratory system, i. e., the bowels, the kidneys, and the sudoriferous glands. The work of depuration is not confined to the above named organs, neither is that their only function, since the intestinal tract is largely concerned in digesting the food and preparing it for assimilation, and the system of sudoriferous glands serves to cool the surface of the body during excessive heat and in fevers. The greater number of diseases that afflict man and sometimes cause his death will result in recovery, if circumstances are favorable, and if there is not some unnecessary interference by the patient, his family, or an unskilful physician. I wish not, however, to be understood as insinuating that the physician is a superfluous piece of furniture and should be abolished. Far be it from me to assert any thing so heretic. I will stand up for our beloved profession at all times and under all circumstances. Yet I should be very happy could I live to see an expurgated edition of the medical calendar. In another part of this paper I will endeavor to show how much benefit the skilful, conscientious physician can confer upon his patients, even though he does not cram them daily with poisonous or deleterious drugs; or cut them open, remove certain parts from their bodies, and sew them up again, as the tailor does in repairing an old garment that is wearing out. Unfortunately, he can not imitate the tailor, who inserts a new piece where he has removed the defective part. He can not replace the organ that has been removed by inserting a new and healthy one, thus preserving the natural function. The body, after such a mutilation, necessarily remains an imperfect machine. The occult principle which we call nature or vital force, is the chief motive power in the development, the growth, and also the decline and death of the human body. It may seem somewhat paradoxic to assert that the vital force is instrumental in the induction of decay and death. Yet it is ap-

parent to every careful observer that all vital processes are self-limited, and are continually undergoing changes. From decay and death are developed the elements of a new life, which, in its turn, must submit to the same decline and final dissolution.

We will consider in this paper only the pathologic conditions which result in what we call disease, their detection and their possible cure. Animals and savages, or, as I prefer to call them, children of nature, are not subject to as many diseases, nor to so great a variety of them, as civilized people. Animals die because they are killed and eaten by others, or are destroyed by man, for various reasons. Otherwise they mostly reach the period of life allotted to them by nature's laws. Diseases exist principally among animals that have been domesticated by man, and consequently do not live in a state of nature. The children of nature, or savages, of whom the aborigines of America may be regarded as an average type, are usually born healthy; grow up without requiring much care; and pass their life in a state of health. The men hunt, fish and carry on war; the boys are trained in all the exercises pertaining to war and the chase, spending most of their time in the open air. The women feed and rear their children, cultivate the soil, make the few garments worn and prepare the frugal meals for the family. In this simple manner they pass their lives, very seldom suffering any disturbance of health. When they have accomplished the period of life allotted to them, they quietly lie down and die. This description applies to them when they lived in their native simplicity, before the paleface—the man of civilization—came among them, furnishing them with firearms, that they might have greater facilities for mutual destruction, and with firewater to advance their powers for self-destruction. He inoculated them with hitherto unknown diseases, drove them from their forest homes into less favorable regions, where they pined away, being no longer children of nature. In speaking of the children of nature, their mode of living, their healthy condition, their painless death at the end of their allotted time, I must not be understood as commending the barbarity, the ferocity, the utter disregard for human life that characterizes many of them. Nor would I hold them up as examples to civilized people in anything except their obedience to the laws of nature, which was not due to their having studied hygiene, or having observed sanitary rules on principle, but which arose simply from a natural instinct and an utter ignorance of the artificiality and the conventionalities of civilized life.

I have merely introduced this as an illustration of what will happen when the laws of nature are obeyed, be it from instinct, as among the savages, or as the result of intelligent teaching. Now what is the reason that in civilized countries so many die early, or drag on their miserable, unhappy lives, sick, weak and helpless; requiring the service of a physician from day to day, and from year to year; swallowing incalculable quantities of medicine; then, at last, when they have spent a joyless, painful life, unwillingly entering upon their journey to the unknown Land of the Hereafter? It is because their parents, as well as their more remote ancestors, have lived contrary to the laws and dictates of nature. Nature gives us the sensation of hunger that we may take our food in proper season, in suitable quantities, and of a kind to promote strength, health and long life. Thirst is given us that we may take the necessary liquid to preserve the fluids of the system, to keep the blood in a state suitable for circulation, so that it may carry the necessary nutriment to all the organs and tissues of the body that have been wasted by their functional activity, also to carry off the worn-out parts that are no longer of any service, but, like foreign substances, set up an irritation and cause disease. When man has exerted himself, either in labor or in amusement, he is overcome by lassitude, which serves as a warning that he should retire to rest in order to recuperate his overtaxed powers, and enable his tired brain, his strained nerves, and his overworked muscles to regain their tone, so that, next morning, refreshed and strengthened, he may resume his daily occupation. While he is thus resting from the toils of the day—whether of the brain or muscles—the internal organism, the digestion, the assimilation, the rebuilding of the wasted and worn forces, both animal and intellectual, are being repaired, for that work goes on, even while the man or woman is taking rest in slumber. In this way his powers are strengthened and his endurance prolonged. To eat when we are hungry; to drink when we are thirsty; to sleep, or at least rest, when tired; these are the great, powerful recuperative agents which are employed by animals, savages, or children of nature, without thought, without reflection, just from natural instinct, undisturbed by the fashions of a modern civilization. As a result of this mode of life, they are afflicted by few diseases, and an attack of illness is a rarity. Unless killed by others, they die of senility, after having gone through the ordinary period of their life.

How is it with the people who call themselves enlightened? Do they eat when they are hungry? Do they select the healthiest, the most nutritious diet? Do they take it in such quantities as will best preserve their health and the strength with which nature has endowed them? Do they drink merely to quench natural thirst, the fluidity of the blood, the natural softness and pliability of all parts of the body? Do they rest when they are fatigued, and retire to sleep in order that the tired organs can recuperate and the internal mechanism, quietly and undisturbed, prosecute its usual work of recuperation? No. They do nothing of the kind. They pay but little regard to nature, or her laws. They take no cognizance of this beneficent healing power. They live altogether in a conventional manner; eat at stated hours, fixed by fashion, three, four or five times a day, be they hungry or not. The nutritious quality of the viands is not considered. They tickle the palate with all sorts of delicacies, which tempt them to take more than is necessary for the growth and preservation of the natural powers. This excessive feeding causes disturbances in the digestive apparatus; constipation or diarrhea, with catarrhal inflammation. Now, when nature rebels against this abuse, and a loss of appetite ensues, they excite and stimulate the stomach with all sorts of condiments, causing irritation, with a temporary increase of the gastric fluid. But now the inevitable takes place; the stomach and digestive tract lose their power through over-stimulation, just as the tired horse, when beaten by the driver, is goaded to greater exertions, until finally exhausted, it is unable to go any farther, and falls to the ground either dead or unfit for further exertion. The civilized man drinks all sorts of stimulating and exciting beverages, which increase, instead of quench, his thirst. Should thirst, however, fail, because an excessive quantity of the

beverage has been taken, it is stimulated by highly seasoned food. The brain is then excited; wit and repartee fly in brilliant corruscations; restraint is dissipated; and men who by nature are sober, dignified, thoughtful and modest, become wild, irrepressible and regardless of the opinion of others. The color is heightened; the blood rises to the head, producing a congestion of the brain. The period of healthy sleep passes away; and when at last the reveller is overwhelmed by drowsiness and yields to the persuasions of Morpheus, he does not enjoy the healthy sleep that recuperates the worn-out powers of mind and body; but sinks into a semi-coma, frequently tormented by awful nightmares and visions of horror, to awake later in the day with a brain-splitting headache, which disqualifies him for a satisfactory performance of his duties. This is the history of many a banquet partaken of by enlightened and highly cultivated gentlemen in civilized countries. Of course, this description does not apply to every social gathering and banquet in our times; but I have given an extreme case, to show to what our modern fashions sometimes lead us. But without doubt, we all violate nature, more or less, in our mode of living; in eating, drinking and taking our rest. Even though we are fully enlightened as to the danger to health and life, we are dragged into the vortex of fashion, and find it difficult, if not impossible, to extricate ourselves from it. The health-, strength-, and life-giving sunlight is lost to us in a great measure, because we spend much of that time in sleep. We live, we pursue our avocations and our pleasures by artificial light, in closed rooms, excluding the pure air which is of such importance to us in the preservation of health and strength, both of body and mind; eat unhealthy food; drink brain-destroying beverages. Is it then a wonder that so many have pale, sallow complexions and weak, excitable nerves, which cause them to toss about in the bed, unable to sleep; to sit at the table without appetite; to suffer fatigue from the least exertion; to have the doctor in the house half the time?

Let us see now what the average physician, the mediocre, who regards his calling as a mere trade out of which he makes his living, will do when called to such a patient. Does he investigate the previous history, by the help of which he could discover the cause of the pathologic condition, thus having before him a picture of the origin, the extent, the course, the probable end of the disease, which would serve him as a safe guide to find ways and means to combat the evil? No. This would be too laborious and perhaps a little beyond his acquired knowledge. He may even fear to offend the patient or his family by trying to know more than they are willing to communicate, which would endanger his prospects of future emolument. He, therefore, treats the disease symptomatically, administering a variety of drugs, mostly of a poisonous nature. Without inquiring into the cause of pain, he gives anodynes, such as morphin, cocain, etc. For asthenia he gives strychnia and other stimulating drugs. For high temperature he gives depressing medicines, without inquiring into the cause of the fever or endeavoring to discover whether it is not the effort of nature to rid the system of some offending substance, in which case a little water, externally and internally applied, would assist nature and relieve the sufferer. It is astonishing what horrible doses are administered by the superficial physician, converting the stomach and alimentary canal into a chemic laboratory, thus gradually sapping the foundations of life.

But let us leave this dreary theme, and see what the well-informed, the sensible, the industrious, the conscientious physician will do. He investigates the hereditary tendencies, the surrounding circumstances that may have exercised an influence in the causation of this particular disease. He does this, regardless of the danger of giving offense, although he employs tact in the pursuit of his investigations. After having made all the necessary inquiries, he enters upon a careful, thorough, and if necessary, prolonged physical examination in order to be sure of his diagnosis before entering upon the treatment. If he discovers that nature is too weak to remove the evil, he assists with innocuous remedies, or even with strong ones, if this is shown to be absolutely necessary. But, if he finds that the natural powers are sufficient to accomplish the work, he does not intervene with a disturbing hand, but permits the healing power of nature, *vis medicatrix naturæ*, to have full sway.

In the year 1866 I was called to a little girl, two years old, that was laboring under fearful convulsions. The physicians in that section, none of the brightest, had always ordered hot baths and anodynes for convulsions, regardless of the cause. When I arrived, the child was seated in a hot bath and had taken several doses of paregoric. The spasms had lasted for an hour when I arrived, and were getting worse instead of better. I inquired if the child had been subject to such attack, to discover if it were a case of epilepsy. The answer was negative. Had it suffered from constipation or diarrhea? No, it had never been sick. Had it eaten anything that might disagree with it? The parents, who were intelligent people, said they knew of nothing the child had eaten that could have put it in such a state. On further examination I found no fever, no pulmonary trouble, no kidney or bladder disturbance. But the epigastrium was terribly distended and hard, giving evidence of an extremely overloaded stomach. I decided to empty it at once, as no time was to be lost. Owing to its distension, the stomach was incapable of peristalsis. Here, nature being unable to act, assistance became necessary. I administered a simple emetic, followed by a cup of warm water, which induced copious emesis. It was perfectly astounding to see what came out of that poor, afflicted stomach; bread, potatoes, cabbage, sweet potatoes, beef, ham, pickles, dried apples, etc. There was enough in that infant's stomach to serve as a full meal for a hardy laborer. On my inquiring, with some degree of acrimony, how this happened, the cook, a large, fat, colored woman, acknowledged that when she was eating her dinner in the kitchen, she seated the child on the table and encouraged it to eat of everything, enjoying the sport of seeing the greediness with which the little thing swallowed all that was given it, never thinking that it would do the child any harm. I gave it several cups of warm water, until it ceased vomiting and the stomach was completely cleaned out, without the use of the stomach-pump. No other treatment was necessary; the convulsions never returned.

I hope you will not be offended if I bore you with another example. About twenty-eight years ago, an old German shoemaker came to me and said his wife was terribly afflicted with her water. Every attempt to urinate caused her such intense pain that she had to scream out. She could not bear the least touch

about her sexual organs without the most excruciating pain. Dr. A., he said, had treated her with washes, ointments and internal medication, for almost a year without ever examining her. (Dr. A., by the way, posed as a gynecologist.) The old man said: "I have made the doctor and his boys ninety dollar's worth of boots and shoes, and he holds me in his debt yet, while she is getting worse all the time. Now I want you to come to my house, examine her carefully, and either cure her or kill her, for we can't live this way any longer." On examination, I found a caruncle at the orifice of the meatus urinarius, very red, about 3/16 of an inch in diameter, attached by a stem, looking very much like a ripe currant. It was extremely sensitive to the touch, causing a scream every time the finger came in contact with it. I took a pair of scissors, curved on the flat, out of my pocket-case and cut it off, touching the place with a stick of nitrate of silver. The woman was cured, no further treatment being employed, except a simple alkaline remedy to correct the acidity of the urine, which only had to be continued for a short time.

I could relate very many cases where the simplest remedies, judiciously applied, brought about the most astonishing results. Many a time, after the routinist had tried all his best skill in giving strong medicines, and employing heroic treatment without benefit; yes, even with great injury to the patient; the hygienic physician, with the simplest remedies, has accomplished the most surprising cures. The physician who has more regard for the welfare of his patient than for his own reputation as an elaborate therapeutist, will post himself thoroughly in physiology, or the natural working of the inner machinery of man; with pathology, the disturbance of this same machinery, which causes what we designate disease. Is he fully cognizant of and well instructed in these two branches; does he possess good sound sense, acute and well-practiced powers of observation, intimate acquaintance with the best and safest remedial agents, a mind quick to take in the situation, and fertile in expedients in cases of emergency; and, in addition, an honorable and conscientious character? If so, then the patient may safely trust his health and life to him. He will not poison him nor undermine his constitution, but will, if the disease is not a deadly one, restore him to health in the shortest possible time, and with the least expenditure of medicine. For he relies upon nature and her diversified powers, as far as she is capable of doing the work herself, only intervening with artificial remedies when nature is too weak or perverted. Let not, however, the layman be led to imagine that, because Nature's Therapy is recommended, he can dispense with the services of the physician; for, without such aid and advice, he would not only fail, but, by his ignorant interference, he would pervert the natural processes, and the patient would be in a worse condition than before. Neither must the layman be permitted to think that the man who does not cram his patient, daily and hourly, with strong and poisonous drugs has failed in his duty and is not entitled to reward. For it is a self-evident fact which should, by every possible means, be impressed upon the general public, that the physician who can restore his patient to health without making his body the receptacle for great quantities of destructive poisons, is a much more intelligent and trustworthy medical adviser, and will more surely earn his reward, than the man who, without investigating the nature of the disease, fills the poor sufferer with strong medicines, regardless of the mischief this course may do in undermining the health and interfering with the future comfort of the victim of such heroic treatment.

The Therapy of Nature, of which I have given a feeble and imperfect picture, will not suffice for all cases. Nature can not remedy all errors nor repair all lesions, although a large majority might be prevented if man would always live according to nature. Yet, since this is not the case, it is essential that other branches of therapeutics should be closely studied and skillfully practiced. Heroic treatment is sometimes indispensable, and the surgeon's knife must now and then be called into requisition. Yet the study of nature and the employment of her methods in medical practice should always hold the highest place in our therapy.

HYGIENIC MANAGEMENT OF CHILDREN.

Presented to the Section on Physiology and Dietetics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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This subject is so broad that one hardly knows where to begin. To have children as perfect as possible we should begin several generations back. The Mosaic statement, "visiting the iniquities of the fathers upon the children even unto the third and fourth generation," is a physical fact, which applies no less to the mothers than to the fathers. If parents would have the best possible children, they should get themselves in the best condition previous to the begetting of the children.

It is a humiliating fact that the most important act of a man's life is too often accidental. In the breeding of the lower animals the greatest care is used. If a farmer is breeding for milk, beef, or beauty, he selects the parent stock with the greatest care, with an eye to the particular point to which he is building. It is interesting to note with what care the horse breeder who is breeding for speed and other fine points selects the animals from which he is to breed. Not only must the sire and dam be all right, but he looks up the pedigree for several generations back to make sure that no trick or taint of blood has existed in the progenitors which may show in the later generation. He is particular that both parents be in the best possible condition at the time of conception, and that the mother be kept in good condition during the period of gestation.

With care, improvements may be made in a breeding. Note the increase in speed of the horse. What would have been considered a fast horse fifty years since would be thought a slow animal now. Even with the hen what wonders have been wrought both in egg production and marks of beauty. The same is true with fruits and flowers. What large fine, delicious flavored fruit has been developed from the small, inferior wild progenitors. With flowers what delicate tints and rare perfumes has intelligent cultivation produced.

With all these facts before us as object-lessons, is it not humiliating to see so little improvement in the human animal? Small, deformed, diseased children may be seen all around us, who, if they live, will develop into inferior men and women. What are we as a body of thinking, scientific men and women doing

to remedy this great evil? Perhaps you will say: What has this to do with the management of children? But how can we manage children unless we have them to manage; and it is quite important that we have the right kind to begin with. Take a wild crab-tree, and by judicious pruning, we can improve its appearance, but the result of our labors will be unsatisfactory. On the contrary, take a fine, improved Bartlett pear-tree and a little care will yield us in return the most delicious fruit.

Having a good child to begin with, the first thing to claim our attention is the food. The most natural food is the milk of the mother. But to have this food in a proper condition the mother should be in good health, properly nourished, and free from annoyances which will excite and irritate the nervous system. Milk producers understand the great importance of proper food and drink in determining the quality and quantity of the milk, and also the importance of quiet, gentle treatment for the cow. The same is true of the nursing mother. Plain food and drink with gentle exercise and freedom from nervous excitement will give the best results. It is well known that the improper food and drink of the mother at irregular hours is the cause of many of the ills of the nursing child. Often a fit of anger on the part of the mother will so affect the milk as to cause disease of the child. If from any cause food other than the milk of the mother is to be given to the child, great care should be used in selecting and preparing it.

A great variety of substitute foods have been put upon the market, many of which are very good. I have seen fine, healthy children, whose principal food was Malted Milk or Mellin's Food or some similar preparation. As a rule, I prefer the milk of a healthy cow. The specific gravity of human milk varies from 1.028 to 1.036; that of cow's milk 1.028 to 1.034. The chemic composition of milk is:

	Fats.	Sugar.	Proteids.	Ash.
Human Milk	3.5	6.5	1.6	0.25
Cows' Milk.	3.9	4.7	3.7	0.7

As will be seen by the analysis, the milk of a good cow is too rich in proteids and deficient in sugar for the young child. We usually add an equal quantity of soft or distilled water, and also a little sugar. If the quality of the milk is poor in casein and butter, we add less water. If it is rich, as in the case of the Jersey cow, we add more water. As the child grows older, and sleeps less and exercises more, an increase of proteids is demanded for the development of the bones and muscles, consequently we add less and less water, until the milk may be given undiluted. As a rule, good milk or some of the prepared foods will be sufficient for the first year.

Many mothers derange the digestive organs of the child by giving it bread and other starchy foods too young. As the salivary glands of the infant are not sufficiently active for their secretions to aid in digestion for the first six months, and as the saliva aids in converting starch into sugar, it is evident that no starchy food should be given until after this period. After the salivary glands are sufficiently active the child may have bread and mashed potatoes in moderation. When the teeth are sufficiently developed to masticate the food, fruit and vegetables may be given with advantage. As a rule, the child should have no meat until after the first year. Mothers and nurses often feed children meat when only a few months old. This makes them more excitable. My observation has been that children who are not fed meat until a year or two of age, are less excitable and more healthy, other circumstances being the same. Strong tea and coffee often make the infant wakeful, fretful and irritable, and sometimes cause constipation; they may be taken through the mother's milk or may be given to the child direct. Many nurses let the child sip strong tea and coffee from their cup when they are drinking it; this should never be done; it is one great cause of nervousness in the child.

Regularity in the hours of feeding is important and should be established at an early age. In rare cases the child may be fed every two hours; usually every three hours is better, and as the child grows older and is able to take more food at a time it may be fed less and less often, but all changes should be regular. Cleanliness and clothing, except with the very ignorant, usually receive proper attention.

The temperature of the rooms of the mother and child should be kept even. Some nurses let the room get too warm, then a free perspiration is produced which makes the patient more sensitive, and with the cooling of the room or the admission of fresh air, a chill is felt. The room should be large enough that a proper supply of fresh air may be admitted without the patient feeling a draught. A cubic space of 1000 feet is desirable for each individual. The average composition of pure atmospheric air per cent. per volume is O 20.96, N 79, CO_2, .04. In addition, there may be traces of ammonia, mineral salts, and organic matters. A healthy, average sized man, at rest, breathes at the rate of seventeen respirations per minute. At each respiration about 30.5 cubic feet of air pass in and out of his lungs. The composition of this respired air is roughly estimated as follows: O 16.96, N 79, and CO_2 4.04 per cent. The air in the lungs loses on the average 4 per cent. of O and gains 4 per cent. of CO_2, while the N remains unchanged. We should never allow the air in the room to contain more than 6 volumes of CO_2 in 1000. The Boston building law requires every hall, auditorium or room of every building used as a schoolhouse, factory, theater or place of public assembly or entertainment, to have in continuous operation, while occupied, a system of ventilation so contrived as to provide 50 cubic feet per minute of outer air for each individual and for each light other than an electric light.

Sunlight is essential to the healthy development of the child. Plants and animals deprived of sunlight become pale and sickly. The florist understands the importance of sunlight in giving the finest tints to his flowers. Many a child is pale and sickly because it is kept indoors and deprived of sunlight and pure air. If the weather is too severe for the child to go out, give it a sunny room for a playroom. If too young or too feeble to play, keep it where the sun will shine on it a part of the time at least. The love of liquor, which leads to drunkenness, is often born with the child, stamped by the mother during the period of gestation because of the bitters and other alcoholic mixtures which she takes for fancied ills at this time. It may also be acquired by the dosing with cordials, essences, slings, etc., which are often given during the period of infancy. Many nurses administer hot whisky whenever the child has indigestion or is a little worrisome. In some cases the family physician is at fault in recommending hot whisky for colds and brandy for intestinal irritation. These remedies become so attractive that the young

man has his sick spells very often, and at times he is in such mortal fear of the difficulty that he takes the medicine to ward off the dreaded malady. Men have often told me that they had no love for liquor, in fact did not know the taste of the different alcoholic mixtures until it was prescribed by the physician. A young man who became a confirmed drunkard told me not long since that the family doctor was the cause of his downfall. When quite a young man the doctor, on meeting him, would often say, "Fred, you don't look well," or, "you have a bad cold; come into the drugstore and have a little brandy with me." Parents often complain that children are deceptive, disrespectful and falsify. Is this to be wondered at, when, as in some families, the first lessons given the children are in this direction? Parents often dispute and call each other harsh names in the presence of the child. Soon the child thinks it can use the same language to the parents that they use to each other. The mother, in the presence of the child, talks about her neighbors and declares that she never wants to see them again. But when they do call she is all smiles, and urges them to stay longer and to call often. These are lessons which soon bear fruit in the child. As to falsehood, how often the mother says when administering bitter medicine to the child: "This is good, it is sweet; take it, just take this one spoonful and you need not take any more." In an hour a similar dose is repeated with the same story. Will the child believe the mother after this? If the mother can lie to and deceive the child the child will practice the same on the mother. Perhaps an unwelcome caller is seen coming and the child is sent to the door to say, "Mother is not at home."

The brain should not be developed too rapidly. Many a child has the brain developed at the expense of the body. The first care should be to build up a good, strong, healthy body. As a rule the child should not be sent to school under six years of age. Kindergarten exercises, under the care of a sensible teacher, may begin much earlier. In most of the public schools the children have too many studies and too long lessons. Many girls in the high school break down from excess of mental work and become invalids or fill premature graves. Many a fond mother mourns the loss of a brilliant daughter and sees the folly of overcrowding in school work when it is too late. Brilliant mentality requires an active, healthy brain which must have a strong body to support it. A healthy, growing tree must have good roots. Good digestion is as important to the active growing child or to the pupil in the public school as good roots are to the tree. True, some children who have slender bodies make fair progress in school work, but with a good body their record would be much better.

If parents and guardians would give more attention to the strong, healthy development of the body of the child and less to the fashionable follies of life we would have a much better class of men and women.

DISCUSSION.

Dr. E. STUVER—No question merits our earnest attention more than the one so ably presented by the writer of the paper. If we can not go back a couple of hundred years, as recommended by Dr. Oliver Wendell Holmes, to lay a solid physical foundation for our own children and those who come under our professional care, it is at least our duty to use every means in our power to assist them in attaining a strong and symmetric physical and mental development after they do arrive in the world. In the first place I desire to protest in the strongest possible manner against the deleterious practice of administering stimulants and narcotic poisons to infants. In many cases young children suffer from thirst, and plain cold water, which by the way, should be given regularly, will do them more good than all the paregoric or soothing cordials that can be given to them. Regularity in feeding is one of the most important matters in securing the healthy development of children, and when this course is adopted immediately after birth it is very easy to follow, and in my experience has given most excellent results. If with regularity is conjoined the proper kind of a dietary, an abundance of pure, fresh air, outdoor exercise and plenty of sleep, children thrive surprisingly. Nor are the good effects confined to the children alone, but the parents, through uninterrupted sleep at night and freedom from worry and care largely share in the beneficent results. Give the children pure food, pure air, plenty of exercise and sleep and protect them against stimulants and narcotic poisons and we can confidently look the future in the face with the assurance that they will develop their best possibilities.

MANGANESE IN THE TREATMENT OF DYSMENORRHEA.

BY CHARLES O'DONOVAN, A.M., M.D.
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When the athletic young woman of the present day first made her appearance and began to make the fad popular, physicians thought that with the changed conditions of her life would come such an improvement in her general health that most of her minor ailments would disappear of themselves. Of these I wish, for the present, to consider dysmenorrhea as the chief, and the one that appeared to present the best hope of cure. Sermons innumerable had been preached against the high-heeled shoes and the tight lacing of the generation of girls just gone by, attributing to these pernicious influences most of the ills that afflicted women, and now that no heels, and waists of nature's own proportions had become fashionable, it was reasonable to suppose that the attendant train of evils would also disappear with their causes. But it did not follow; in spite of riding, walking, tennis, bicycling, and finally golf, our girls continue to suffer as did their mothers, from menstrual pains, frequently of great severity.

When tight lacing was in vogue, the cause of this dysmenorrhea was so often some displacement of the uterus, that many claimed for the pain a purely physical origin, and endeavored to relieve it by correcting the malposition mechanically. Retroversions and retroflexions were relieved often by one or other of the many pessaries; anteflexions were operated upon in many ways, sometimes with complete relief, sometimes without ameliorating the pain in the slightest possible degree.

With the development of the athletic age it was discovered that bad flexions became much less common, but the frequency and severity of dysmenorrhea were but little changed. Then came those who ascribed most of the pain to ovarian influence, and the fury for removing ovaries spread over the land. Against this insanity arose everywhere the protests of conservative physicians who thought it better to give some time to treatment of these cases before resorting to the knife. The operating gynecologists seemed to forget that medicines existed, and insisted upon surgery as the only hope. Statistics showing the innocuousness of the operation were offered in support of that view, losing sight of the importance of the ovary to the female economy. Many physicians, however, held back, preferring to give drugs a fair trial, and too often it was found that medicines relieved perfectly cases that had been about to lose their ovaries but which for some reason had slipped out of the

hands of the operators. Cases which submitted to vaginal examination revealed often no discoverable physical cause for the severe pains of each menstrual epoch, and were frequently benefited to such an extent by medicines that no further question of operation was possible. Many young women refused examination altogether and were given remedies empirically, because similar sufferers had been so relieved, and often with complete success. So we may say safely now that young women are not likely to be called upon to select one of several serious operations before a thorough course of medicine has been tried.

Too many drugs have been vaunted as specifics in these disorders, showing by this that no one will give relief always. Sedatives and narcotics will relieve temporarily, but at the expense of leading in many cases to a confirmed habit, so that opiates and the coal-tar derivatives should rarely be used, especially as our modern women are very cunning and soon learn to use drugs of themselves without asking for a physician's leave. If this is to be effected, we must provide them with what is harmless. This excludes also alcohol, with which thousands of women are drugged into semi-consciousness every month.

The great majority of cases of dysmenorrhea occur in anemic young women, who require iron, and frequently under its influence they regain their proper condition of blood and need no other medicine. This remedy, persisted in for a reasonable period, say six months in many cases, to be used again if the same symptoms reappear, is the most important in the treatment of this ailment. But there are many cases in which iron seems not to be required, from the excellent general health and the rich florid color of the skin, and yet the return of each menstrual period means a new period of agony to a woman who is apparently in perfect health. Between the periods nothing is complained of, but every month the trouble recurs, and each month it grows worse. Such cases are met with every day, in all classes of society—among the neurotic young women of high station and luxurious surroundings as well as among sewing women or worn-out shop girls. Nourishment and exercise have no effect upon the dysmenorrhea; they suffer as well during the summer holidays at the seashore or in the country as during the winter fatigues either of social gayety or of paid labor.

The cases to which I refer do not require iron; and if it is given to them experimentally they derive no benefit from it, or may even be made more uncomfortable. In very many of these cases I have obtained excellent results from the use of manganese, generally used alone, but sometimes with viburnum. I speak now of virgins, who should never be subjected to the indignity of a vaginal examination except as a last resort and after a fair trial of drugs. How these women escape becoming drunkards is a mystery to me, for they invariably have been taught by sympathizing companions that some alcoholic intoxicant, oftenest gin or whisky, is the only available medicine for relief at such times. It does not relieve, except in the sense of deadening their sensibility and thus giving time for the dysmenorrhea to pass away. In treating these cases, I have tried a number of remedies, but have reached the conclusion that manganese is to be depended upon far more than any other, and often gives such results as seem truly remarkable. I have today seen a young woman, otherwise healthy and strong, slender but excellently proportioned, whose activity and energy denote apparently perfect health, but who used to spend the first day of her period every month in a perfect agony of pain, tossing from side to side in her bed, vomiting every few minutes, and crying out with each return of her cramp. Alcohol gave her no relief till she was stupefied, and various remedies that she had tried were useless, or so powerful that she would require a couple of days to recover from their effects. She obtained perfect relief by taking pills of manganese, iron and hyoscyamus for a week before each period, and became so well that she ceased treatment, and paid for her carelessness by a return of her dysmenorrhea nearly as bad as ever. But it may have been the iron or the hyoscyamus. She had been given iron freely before the manganese was added, but without result, and the amount of hyoscyamus was too small—1/3 grain of the extract—to have any such effect. In each pill were two grains of black oxid of manganese, and this I consider the efficient drug.

This case is but one of many that I could quote from notes, few as bad, but many approaching it in severity, that I have watched for longer or shorter periods during the past ten years. More extended records can be found in papers on the subject that I have published in the *Medical News* of April 6, 1889, and Nov. 27, 1897, where several very convincing cases are related. The recent histories of these young women continue to bear out the good opinion originally obtained of manganese, for it has proven itself to be a remedy that does good continuously in such cases as it benefits, not losing its effect with prolonged use but, on the contrary, becoming more and more satisfactory in each succeeding month.

The habit of dysmenorrhea tends to intensify itself in neglected cases, growing worse monthly, and harder to relieve; beginning early in the menstrual life and rapidly fastening upon the sufferer such a fear of the recurring pain that life becomes a burden. For this reason it is advisable that treatment should be instituted at as early a period as possible. Dysmenorrhea does not disappear of itself; it always grows worse if let alone. Therefore it is very bad practice to put off the mother of a young girl whose early periods already cause her great pain, by telling her that time will bring relief. It will not; on the contrary, we have every reason to believe that each month will, if let alone, be worse than the last. But the ardor of the operating gynecologist has been such that many mothers, from fear, refrain from mentioning their daughters' ailment. It is in such cases that manganese offers the best means of relief and cure. It is extremely efficient in those young women whose dysmenorrhea seems due to functional neuralgia, beginning almost with the establishment of menstruation. If administered early in the course of the disease great relief is experienced; if persisted in, the habit is, in many cases, readily broken up and the health of the sufferer saved from impairment. Such young girls should never be examined, even by the rectum, unless there is very positive evidence of serious local inflammation, until manganese has been given a full trial.

After the habit of dysmenorrhea has been fully established for years, in older women, it is a more difficult matter to destroy it, but in many instances it can be done. The most important thing to remember is that one should not be too soon discouraged. If a trifling improvement can be seen after two or three months of constant use of manganese, it means that

great relief can be given by it. One need not despair until four or five periods have passed with no benefit from the drug. In many cases it is not necessary to wait so long. If the case is a suitable one, the first succeeding period will be notably easier, and after that little or no pain will occur during the administration of the remedy.

Manganese is offered in various forms, but I have found the black oxid the most satisfactory. It should be given in doses of two grains, by itself or in combination with iron or other adjuvants, about an hour after each meal. It may be used for an indefinite time without any ill effect, and should be given constantly until its efficiency or inefficiency shall have become manifest. If benefit is obtained at once, I then order it to be taken for two weeks before the next period; if that has been nearly painless, it is given during one week before the following period. In successful cases, this is usually enough, and taking the drug during one week just before menstruation insures a painless period. No deleterious effects of any kind follow its use in this manner. It should be continued indefinitely; usually after a few months the patient feels cured and stops taking the pills, but this is apt to cause a return of the dysmenorrhea, especially in those women who have suffered for any length of time. In young girls the habit seems to be more readily destroyed, and the general systemic improvement renders the cure permanent. One must not expect cure, or even relief, in all cases that present themselves, for many will obtain no benefit whatever, but many others will be benefited by manganese after other remedies have been tried unsuccessfully, and when there seemed nothing left to hope for but the sacrifice of the ovaries or some other surgical treatment.

10 E. Read Street.

SOME EXPRESSIONS OF ABORTIVE ATTEMPTS AT INSTRUMENTAL ABORTION.

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Without doubt, of all the cavities of the gynecean body not intended by nature to be invaded with impunity, the impregnated uterine cavity enjoys the distinction of being the most often explored. This is so, not only because of the many delicate perplexities ofttimes presented for differential diagnosis, but also because of the many other less scientific, but ethically regarded purposes.

Most often abortion, with its sequelæ, follows these instrumental invasions. Not seldom, and in the hands of skilled operators, these attempts and even repeated attempts to induce abortion prove abortive, much to the surprise of the patient and discomfiture of the operator; the reaction caused by the attempts passes off and pregnancy continues. In a few cases trauma and infection are caused by these attempts, yet pregnancy continues, but sooner or later and before full term is attained, dangerous inflammatory and septic reaction follow from these traumatisms and infection, which require immediate interruption of the pregnancy to preserve maternal life. Some five years ago[1] I had such a case, where there was a history of repeated instrumental invasion of the impregnated cavity, with traumata and sepsis, but without interruption to pregnancy. To save life it was necessary to interrupt the pregnancy.

[1] Meeting this patient a short time ago and hearing some compliment extended her because of her splendid physical appearance, I requested and obtained the pleasure of writing her up, hence the "years ago."

Case 1.—Mrs. X., 5 ft. 6 in., 125 pounds, housewife: temperament nervous, easily hysteric. First pregnancy, normal labor, boy now 8 years old; second pregnancy, normal labor, boy now 6¾ years old. Subsequent pregnancy successfully evaded until present case, when in August, with usual subjective symptoms of menstrual expression, there was no sign of menstruation. To persuade the flow the patient used steam and hot water, sitz baths, douches, much and various medication, all without the hoped for result. Growing desperate, two weeks after regular period a button-hook was employed (Fig. 1A), the immediate result being some flow, ceasing after ten minutes, accompanied with backache and bearing-down pain of some two hours' duration, but gradually subsiding. One afternoon, coming from a professional consultation, during which a sound (Fig. 1B) had been passed and actively moved about, the patient, clad in light summer garments, was caught in a severe rainstorm and thoroughly chilled. Reaching home she was taken with a violent chill, followed by fever, with sensations of warmth and fulness in the pelvic tissues, with sense of bearing-down pain; no signs of blood.

During September the patient experienced at irregular times, sensations of chill followed by fever, nausea, vomiting, and loss of appetite; natural nervousness increased by the thought that she was yet pregnant, notwithstanding the much medication and that the probe had been passed upon three different occasions, to encourage an outlet for the so called retention. At night especially, she was troubled with unpleasant dreams, high temperature, chills and flightiness, indicative of mild deliria. These were attributed to excessive nervousness and hysteria. Unknown to the usual attendant, another was called in one evening during such a slight delirium, who believed there was retention from pregnancy, with sepsis, and proceeded with instruments—which seemed very unclean—to encourage bringing away what was there. He seemed to stretch something (probably the cervix only), causing a slight appearance of blood but not much pain; he called but twice.

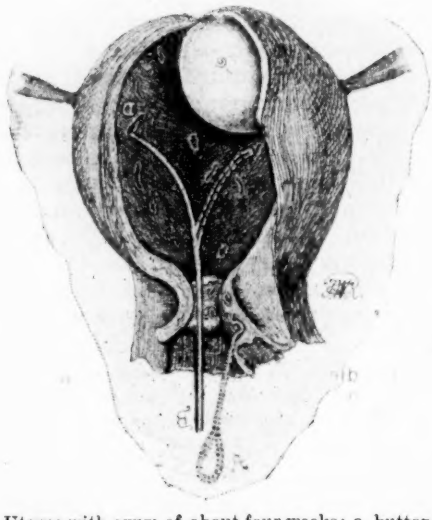

Fig. 1.—Uterus with ovum of about four weeks; a, button-hook, causing lacerations about cervix; b, probe, causing lacerations of the decidua vera at d; c, gestation sac.

When increased pains and nervous disturbances produced by this stretching had quieted, the patient, to encourage the treatment, would lift heavy chairs, boxes and weights, but without effect. Toward the beginning of November, attendant No. 1 suggested that she be removed to the hospital as she was developing typhoid fever, as at this time, beside spasmodic pains with irregular chills and fever, she was seized with vertigo upon the least exertion, followed by loss of consciousness. Thereupon attendant No. 3 was called, who from the patient's account, suggested that there might be extrauterine pregnancy, though he had not examined her, and advised immediate removal to the hospital for chloroform examination and treatment. Instead of complying, the husband removed the patient to another hospital, where attendant No. 4 diagnosed normal pregnancy, with hysteria, accusing the patient of desiring to come there for the express purpose of having the uterus emptied. While here the marked pelvic pains and fullness were much relieved by hot fomentations to the abdomen.

The patient left hospital No. 1 after six days. The first night at home she developed such fever and delirium that the husband removed her the next day to hospital No. 2, where attendant No. 3 was in attendance. Here chloroform narcosis established a normally situated pregnancy, ovaries enlarged and swollen; with excessive nervousness. She remained here two weeks; during the latter part of the second week she developed an inflammation of the rectum. After the second week, not improving, the patient again returned home, where attendant No. 5 was called in, who believed the case one of pregnancy with some serious complication, and called but once. Attendant No. 6, upon examination, recognized the rectal abscess. The rectal abscess broke within four days, pus and blood coming away with the frequent stools. Thanks to the rupture of the rectal abscess, attendant No. 6 found the patient much relieved during the two following days, the hope being extended to her that her trouble would soon cease. But after these two days her nervousness, fainting spells, irregular chills and fever, pelvic pain with dysuria, returned with gradual increase. Attendant No. 6 now said that there must be something there (in connection with the pregnancy) which must come away or be brought away, else she would die, but he did not wish to continue the case; he did not make a diagnosis. Thus the case had continued from September, with its various probings and treatments, with its irregular manifestations of hysteria, nausea, vomiting, loss of appetite, marked thirst, chills, fever, pelvic pain and heat with gradual exhaustion and emaciation.

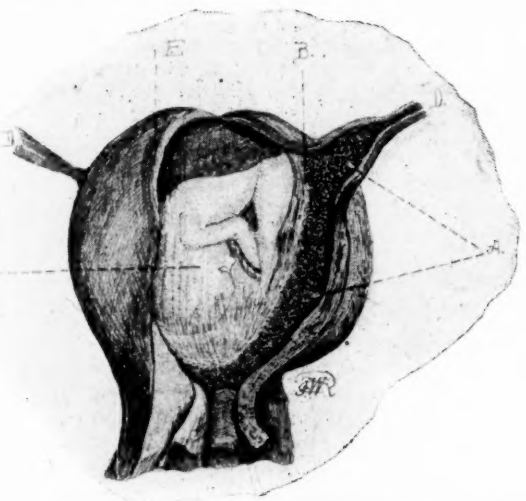

Fig. 2.—Uterus with fetus of about the fourth and a half month; a, pyometro-salpinx; b, fetal membrane: c, fetus; d, left tube; e, uterine wall, normal.

About the middle of December I saw the case for the first time and diagnosed an intrauterine pregnancy (Fig. 2C) with a pyometra (Fig. 2A) extending up into the left tube (Fig. 2D) a pyometro-salpinx (Fig. 2A-D) with chronic systemic intoxication from septic absorption, infection having occurred most probably from the repeated and ineffectual attempts at the induction of abortion (Fig. 1, A-B-D). There was emaciation with cachetic appearance, anemic murmurs and evening temperature, with morning drop. Examination revealed an enlarged four to five months' pregnant uterus with a readily outlined bulging of its left side apparently extending up and into the tube (Fig. 2, A-D) gradually diminishing in size toward the outer third of the tube. The right side of the uterus and pelvis were normal, and not sensitive to the touch, but the left side of the uterus, continuing up to and along the tube, was very sensitive, was tumefied and gave a sensation of a purulent collection. The cervix was firm and closed. There were irregular bearing-down pains, quite strong in character, but not sufficient to cause dilatation of the os or to rupture the pyometro salpinx. Calomel was administered and a 3 per cent. carbolic douche ordered, t. i. d., thinking that from the consistency of the abscess and the well-marked uterine pains the pyometro salpinx would thereby be encouraged to find exit through the cervix: if so, pregnancy might continue to term. After seven days of this treatment the pyometro-salpinx broke through the cerviv, pus, blood and clots appearing in greater quantities than in the case of the abscess in the rectum. Relief again followed and I hoped that pregnancy might now continue without further difficulty, therefore I did not rupture the gestation sac; there continued a slight flow of pus and mucus, but again after the third day the old complex of symptoms reappeared and increased, notwithstanding the decreased sensitiveness of the uterus and tube of the left side. This I attributed to the irritation between the abscess walls and the growing gestation sac (Fig. 2B-A-D) and the retention of abscess contents above, caused by the pressure of the gestation sac upon the collapsed abscess uterine walls below, thereby cutting off drainage. Therefore I decided to induce premature labor and empty the uterus.

With Dr. Barnard's assistance the patient was chloroformed. She took chloroform very unkindly and was very weak, notwithstanding hypodermic stimulating injections, so much so that we felt it would be better not to conclude the emptying of the uterus, but to rest satisfied with dilatation of the cervix and breaking down of the gestation sac, and remain ready for any emergency, should one arise. With considerable difficulty she was revived. The pains reappeared, but were now more normal in character, the contractions continued to increase in strength and rhythm, until after thirty-six hours, a four and a half months' macerated fetus was expelled without much pain, the patient having been given codein.

After a few hours the exceedingly foul-smelling secundines were expelled without assistance. Relief was so great that the patient immediately fell into a profound slumber from which she awoke with the cry of, "Where am I? Please give me something to eat," the first craving for food in several months. No drainage. Convalescence was slow, but perfectly established by April.

Had she not been in so low a state the uterus would have been emptied at once. From this distance it may seem to have been more judicious to have assumed the risk and have wholly emptied the uterus at the time. I think I would do so should I have another case under like extreme conditions. Yet that the uterus was not wholly emptied was not without its advantages, as with the return of consciousness she appreciated more and more perfectly the increasing severity of the growing uterine contractions. The pain seemed to act as a stimulant, arousing the system to react with splendid physical effect, as was so beautifully shown in the subsequent course of the case.

It reminded me very much of one of my first tracheotomies. It was an emergency case in diphtheria where I had but my pocket-case with me. Picking the unconscious child from off the bed, laying her upon the table, in cutting I noticed that no reaction ensued until I was down upon the trachea, and then only was it necessary to hold her from struggling when the tracheal rings were cut. While waiting for the tracheal tubes to come from my office (twenty-five minutes), I held the artificial rima apart with my pocket-case dressing forceps, and observed that when holding forceps still in keeping the rima open, no reaction, such as increased respiration or cough followed, but when the forceps were moved, causing pain, the little one reacted with increased physical effect, so that by the time the canula arrived the trachea was comparatively clear and the breathing much freer and more regular. She made an early recovery and is alive and well.

Among other striking features this case amply testifies to what extremes, even repeated attempts and long continued inimic intentions may be carried to induce abortion, yet successfully neutralized by the physiologic resistance of the part locally and by the system generally. Here was a case of uninterrupted intrauterine pregnancy, notwithstanding the repeated and severe attempts to induce abortion, with infection from the traumatism dating probably from the application of the button-hook, increased by the chill of the rainstorm, the repeated active probings and the various treatments. Infection gave rise to unilateral septic purulent deciduitis, metritis, salpingitis and cellulitis of the left side (Fig. 2), and what is remark-

able is, that pregnancy should have continued without interruption, the gestation sac, having escaped the intended injuries, apparently acted as a bar (Fig. 2 B) to the further extension of the inflammatory process to the other side.

Another instructive feature of this case is that the unusual and exaggerated nervousness was regarded as only hysteric in nature. It is true the patient was of a hysteric temperament, but such a spasmodically exaggerated form so long continued, characterized by intervals of normal serenity, yet with patient exhibiting irregular chills, fever, nausea, vomiting, tenderness and warm pelvic fullness during the whole time, with such a history of traumatism and intended abortion, it seems to me that such a complex of symptoms might have suggested another more active cause for this increased apparently hysteric manifestation, viz., the systemic intoxication from the local septic process. In proof of this when the rectal abscess broke, when the pyometro-salpinx emptied itself through the cervix, there followed an improvement in the physical as well as in the mental condition of the patient, but only a temporary improvement, as the irritating cause, the pyometro-salpinx, was still active. Emptying the uterus, all was changed; her long-continued dulled but exaggerated mental state immediately cleared up; locally, douching alone cleared away the retention products from the abscess and post-partum walls. Convalescence, though slow, was perfect.

Another very interesting feature of this case is that, when the uterus became emptied of fetus and secundines and pyometro-salpinx, in the collapse of the uterine walls following this emptying, the freshly denuded gestational walls came into close approximation with the septically infected and long-continued pyogenetically inclined abscess walls of the other side of the uterus, and of that tube (Fig. 2E–AD); yet no new infection occurred on the side of the freshly denuded surfaces. On the contrary, the local condition gave little more trouble than after an ordinary labor or a benign pelvic abscess, where opening alone will suffice to rapidly restore.

Similar cases of repeated attempts at the induction of abortion with failure, are reported by Dr. H. F. Vickery of Boston and Professor Fritsch of Halle. As these cases present points of interest of more than passing notice it may not be amiss to introduce here short extracts.

In the *Boston Medical and Surgical Journal* of October, 1890, p. 413, Dr. Vickery reports under the head of "A Much Enduring Fetus," as follows:

POINTS OF INTEREST.

1. Conception occurred while mother was nursing a child only 6–8 weeks old.

2. That pregnancy should persist despite so many adverse influences. In November, baby one month old; profuse menstrual flow. December, not appearing, took tansy tea, turpentine, catheter daily effort for three weeks. Toward end of January thought she had succeeded; constant metorrhagiæ through February to middle of March; obliged to call her physician, who mitigated the flow by exhibiting ergot; flow continued. Then blunt wire curette for what had been regarded as retained placenta, followed by swabbing inside of womb with Churchill's tincture of iodin. It is probable that this operation did not affect more than the cervix; flow continuing douched with gallon of hot water t. i. d. for four days, still hemorrhage persisted. Patient now profoundly anemic. V. invited to see her and remove obstinate placenta. V. found fundus reaching nearly to the umbilicus—induced labor and emptied uterus—convalescence uninterrupted but slow. Fetus 5-6 months.

3. That the woman escaped sepsis or any permanent injury.

In the *Cbl. für Gynekologie*, 1880, p. 197, there appears a case of Professor Fritsch reported under the head of "Ein Hartnäckiges Ei" (referred to him and reported by Dr. Stumf, *Cent. f. Gyn.*, 1879, p. 457), as follows:

PREVIOUS HISTORY.

A primipara with rachitic pelvis was delivered (December 1877) of a breech presentation fetus, with the assistance of a blunt hook, after much difficulty. A vesico-vaginal fistula soon after developed, which was operated on by Professor Fritsch three different times; finally, in the autumn of 1879, perfect vesical function was attained.

PRESENT CASE.

In 1879 the patient was again pregnant. Consultation of a local physician with Prof. F. determined that because of: 1, rachitic pelvis; 2, danger of rupture of a so hardly won vesico-vaginal cicatrix it was suggested that abortion be induced, to which the patient responded with the request that it be done as soon as possible. Oct. 20, 1879, a sound was passed by the local physician. Considerable pain was felt when the point of the sound entered the os; a laminaria tent was then passed into the cervix and the vagina tamponed. When the tampon and tent were removed there was hemorrhage and it was supposed that the ovum had come away in the clot. The patient not being satisfied that the uterus had been emptied, fourteen days after she traveled to Professor Halle, who passed a sound into the uterine cavity and moved it about in every direction. Some blood came away, yet pregnancy continued. Jan. 14, 1890, a bougie was introduced into the uterus and left there, and abortion of a normally developed four-months' fetus resulted.

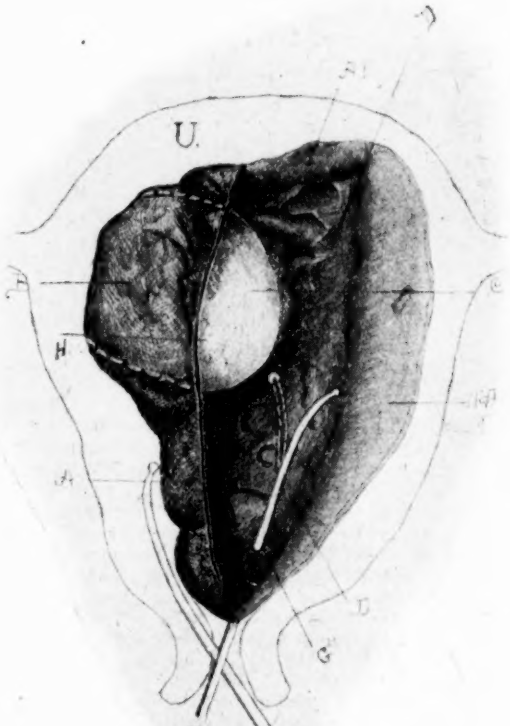

Fig. 3.—Perfect decidual cast from eight to nine weeks abortion; U, uterus (schematic). Decidual cast: a, decidua vera; a¹, decidua vera cut open and reflected; b, decidua serotina; c, gestation sac; d, perioneal cavity containing ovum; e, and f, invading probes; g, where probe e has ruptured through decidua vera; h, fetus.

The ease with which such instrumentation may fail of producing abortion may readily be appreciated by examining Fig. 3, a perfect decidual cast of an eight to nine week pregnancy, containing the gestation sac (C) still unruptured. To induce abortion the usual method is to separate or to rupture the decidua vera (A. G.) and the fetal membrane outlining the gesta-

tion sac (C.) This is done by passing the probe (E. F.) catheter, or other instrument alongside of or through the decidua vera (A. G.) and into the *perioneal*[1] cavity (D), or by the twisting process the probe may be carried to or about the fundus uteri, passing through the decidua vera there, but often missing the gestation sac (as in Fritsch's, Vickery's and present case). The mucoid perioneal or decidual fluid comes away, which is incorrectly regarded as the liquor amnii; some blood flows, followed by pain and other reflex signs and symptoms, but the local physiologic resistance is at times, as in the present cases, so great that it neutralizes the shock of the malignant attempt and, notwithstanding traumatism and perhaps infection, pregnancy continues uninterrupted. Hence the ease with which operators are frequently deceived into thinking their attempts at abortion successful. The uterus is repeatedly entered and actively sounded, reflex signs and symptoms arise but soon subside, yet pregnancy continues. Again, and not seldom, this will explain the unfortunately not few cases of continued and interrupted pregnancies accompanied with complications of a so-called "peculiar type" of enteric fever, peritonitis and typho-peritonitis, with their fearful morbidity and mortality, which follow in the wake of these attempts at abortion.

Again, it is not difficult to understand how these attempts at abortion may occasionally give rise to malformations or monstrosities. The end of the probe or other invading instrument is carried into the perioneal cavity. The point of the extremity may strike the gestation sac, and often does. Where destruction of the sac occurs, death of the embryo, as a rule, follows—abortion usually does; in some few cases, retention is the case. The retention may disappear through absorption or casting off by necrosis, or the retention may undergo other changes.

But in some cases the resistance of the membranes of the gestation sac neutralizes the shock of the invading stroke, or again, the invading stroke may have been an oblique one and thus have glanced off. In both cases the effect would be the same; the membranes would remain intact, perhaps, showing no trace whatever of the traumatic intent. Yet the embryo (Fig. 3 H) within the gestation sac may not be so fortunate as to escape evil consequences. Though the membranes of the sac remain unaffected the potentialities of the abortion stroke may have continued on and been expended upon the embryo, causing trauma, resulting in inflammation or death of a few cells, or of a part or of the whole of the embryo—a condition analogous in later life to the trauma often found in the abdominal cavity following blows, falls, etc., though the effect of the force has left no trace upon the abdominal walls, a part in the abdominal cavity often shows a serious lesion. The effect of inflammation or destruction of a few cells even, during the early stage of embryonic life, as the cells during this period possess the function of germinal cells, may result at a later period in a serious developmental malformation. Writing upon the subject of the genesis of monstrosities and malformations, Ziegler says:

> Malformations may be of two kinds: On the one hand, the ovum may have inherited a tendency to abnormal growth; on the other, a normal embryo may in the course of development be affected by disturbing influences from without which check its progress toward the perfectly developed form. Experience indicates that both events occur. The recurrence of hereditary malformations in the family, such as an excess or absence of fingers, toes, etc., can only be explained by the supposition that the abnormal tendency exists from the first in the embryo, having been transmitted from one or the other parent. On the other hand, the absence of one or more limbs, deficiency of the cranium, etc., are to be accounted for in a satisfactory way only by assuming that external causes of injury have affected the growing fetus. Disturbing influences acting on the otherwise normal embryo play a far more important part than heredity in the genesis of malformations. The pathologic peculiarities transmitted congenitally from parent to child manifest themselves less in anomalies of external form than in deficiency or perverted function of the tissues or in morbid predispositions. Such anomalies are to be detected only by minute anatomic examination, or they are incapable of anatomic demonstration at all. The causes of malformation in any given case can only be approximately determined or referred to this or that hypothetic injury. Monstrosities by defect are commonly malformations by arrest; they owe their existence to a local hindrance to the development of a normally constituted embryo. The earlier the injury the greater is usually its effect. The loss of a few cells in the earlier stages of growth may involve the absence of an entire limb or organ; while later on, after the general form is nearly complete, the same loss might not be noticeable at all. Malformations, in the narrowest sense of the term, originate for the most part in the first three months of fetal life.—Ziegler: Lehrbuch der Allgem, etc.
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> There is a rapidly developing germ-embryo made up of cells whose sensibilities and function are the greater the earlier the stage of growth. At the first day the sensibility and function of the individual cells are far greater than at the thirtieth or ninetieth day. The earlier an injury occurs to these cells the greater must be its effect; a cell or a few cells impaired or destroyed in the earlier stages of development must certainly pervert and stunt the further development to that proportionate extent, even may involve the absence of an entire limb or organ; but later, as is easily conceivable, the same loss may not be noticed.—(Stahl: "Maternal Impressions."—*Amer. Jour. of Obstetrics*, Vol. xxxiii, No. 4, 1896.)

Personally I have never met with such a case of fetal malformation, due to instrumental attempts at abortion, though I remember having such a case related to me for my opinion as to its probability. A patient was confined of a seventh to eighth months' fetus. Before he had mentioned to her anything about its appearance, the parturient remarked to her physician that she feared to look at it as she was afraid that some mark might be present of the repeated attempts that had been made during the first two months to interrupt the pregnancy. To the sister the physician stated that there were marks about the head showing that violence had been used in some manner, causing deformity, especially about the eyes and forehead.

Dr. T. R. Chambers, in the "Trans. of the N. Y. Path. Society," Vol. iv, p. 117, reports a case of "a four-months' fetus, bearing the imprint of the mechanic means to cause abortion." The fetus had imprints upon the crown of its head, a result of the harsh method employed to induce abortion. She had passed a rather stiff catheter, some two days before. Though his subject title conveys the idea I would advance, his subject matter does not. His subject matter is but the natural sequence of trauma with death, followed by immediate delivery, analogous to the subsequent spontaneous delivery following a previous craniotomy in later labor.

I think the future will show, if it has not already

[1] Dr. Dorland, in his excellent "Manual of Obstetrics," uses *hydroperione* as the term for this fluid; would not *perioneal* (περι, around, ὠόν, ovum) be better and more simple, therefore *perioneal* fluid and *perioneal* cavity? The analogy with pericardial, peritoneal, etc., would be more true, since function and composition of fluid and cavity is similar. Hydroperione (μδωρ, water, περι, around, and ἰέναι, to go.) This term was introduced by Breschet to describe a liquid contained between the decidua vera and decidua reflexa, designed, he thought, to nourish the embryo at an early period of gestation.—(FOSTER.)

been shown, that these attempts at abortion, without necessarily affecting the gestation sac, may affect a few of the germinal cells of the embryo, resulting in their inflammation or death, without seriously affecting the life of the embryo as a whole. The life of the embryo continuing, the further development of the embryo will be stunted in so far as the area is to which these cells give development. Thus a slight destructive effect to a few developmental cells in the embryo may give rise to a serious malformation or monstrosity in the fetus.

Again, but a glance at Figs. 1 and 3 will suffice to explain why in the exceptional case menstruation may occur in the presence of an ovum (intrauterine), and continue through pregnancy; it will likewise explain the origin of a *hydrorrohea gravidarum*, or, *hydrorrhea decidualis*, the so-called false waters of pregnancy.

Fig. 3 shows the probe F breaking down the fibrous deciduo-uterine union, and thus more or less breaking open the uterine vessels, exposing them to the entrance of infection and of air. This might explain also the possibility of air emboli or the entrance of air into the circulation with, sudden death. Fortunately this fatal expression is rare, and indicates very strongly that mere separation of the decidua and exposure of the sinuses are theoretically more prominent as the causative factor of air emboli than practically seems to be the case. Of the immense number of these cases of instrumental attempts at abortion; in operative labors, as in podalic version with extraction, difficult and rapid forceps delivery, where serious cervical and uterine lacerations are sometimes unavoidable; in ruptures of the uterus and Cæsarean section, or in gynecologic and surgical operations where important vessels are exposed, it is only for a moment, but a moment is sufficient where pathologic desire seeks an opportunity; in these many cases where blood and lymph vessels are opened and exposed it is very seldom, in fact, comparatively speaking, rare, that sudden death occurs due to this cause, entrance of air into the circulation. The conclusion would seem appropriate that where in an exceptional case death does follow from this cause, some other rôle plays the more active though favoring influence than does the mere exposure of the sinuses and channels.

The treatment of this class of cases with infection and retention, whether partial or complete, should be immediate dilatation and emptying of the uterus. Hysterectomy would hardly be called in question.

IRREGULARITIES OF THE DENTAL ARCH.

Presented to the Section on Stomatology, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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Having in the last two decades given much attention to researches on the etiology of the types of faces of most nationalities, I propose to present the causes of irregularities of the dental arch in a concise, practical manner. In studying the etiology of irregularities of the dental arch, I shall discuss the merits and demerits of some of the later theories, including those as to the alleged normal dental arch. Two misleading classifications of what constitutes normal dental arches have been advanced by able practitioners of dentistry.

"The American System of Dentistry," Vol. ii, page 1030, published in 1887, contains an article entitled "Dental and Facial Types," in which the author, after discussing temperaments, attempts to show that certain forms of dental arches (which he calls types) are characteristic of different temperaments. Thus, "the arch of the bilious temperament from cuspid to cuspid is almost flat, the lines backward from these points divulging in an almost straight line. The dome of the mouth is high and almost square. The sanguinous arch resembles a horseshoe in shape. The dome of the mouth is high and semicircular. The arch of the nervous temperament presents a strong contrast to either of the two preceding, and is sometimes spoken of as gothic, from its pointed character. From the central incisors, which often overlap for want of space, the line of the remaining teeth continues backward with a slight curve, the greatest prominence being between the cuspids and first bicuspids. The roof of the mouth partakes of the same curve and angle as the arch. The lymphatic arch is almost semicircular in its outline, and somewhat resembles the sanguinous temperament. The dome or roof of the mouth is flat and low."

In "The American Text-Book of Operative Dentistry," page 18, the author of the chapter on "The Dental Arch" remarks: "The square arch (which resembles Ivy's arch of the bilious) is found usually in persons of strong osseous organization, of Scotch or Irish descent, of Gaelic extraction. The round square (which resembles Ivy's sanguinous) is the medium arch, and is the form usually met with in ordinary well-developed, robust Americans. The round arch is the circular or horseshoe. . . . The arch is quite characteristic in some races, as the brachycephalic, South German. The round V (which resembles Ivy's nervous arch) is constricted in front or narrow, so that the incisors mark a small curve, whose apex is the center. It is the arch of beauty, and that most admired in women of the Latin races."

When the causes which produce the changes in outline and deformities are fully understood, the absurdity of the theories from the standpoint of later researches becomes apparent. Since the frontal arch can not be outlined until all the permanent teeth are in position—as nothing can act except it exists—and as these deformities are never observed in connection with the first set of teeth, in order to study the normal or deformed arch, the person must have reached the age of from 6 to 12 years. It is self-evident, then, that the influences which bring about changes in outline must exert themselves at that period and not earlier. In order, therefore, to understand the normal as well as the abnormal dental arch, the human face and jaws must be studied.

The evolution of the human face and jaws is rather complicated, since their development is the result of two forms of evolution: 1, the evolution of the face and jaws from the embryo to maturity; 2, the evolution of the face and jaws from the anthropoid ape to that of the present man. The human face is modified backward from the vertebrate type. It is an additional illustration of the degeneracy of a series of related structures for the benefit of the organism as a whole. The progress of development of the face in the vertebrates is checked in man: 1. As Minot[1] remarks, because the upright position renders it unnecessary to

[1] Human Embryology, p. 468.

bend the head as in quadrupeds. 2. Because the enormous cerebral development has rendered an enlargement of the brain cavity necessary. This has taken place by extending the cavity over the nose region as well as by enlarging the whole skull. 3. Because the development of the face is arrested at an embryonic stage; the production of a long snout being really an advance in development which does not take place in man.

The human face at birth is so near that of the monkey that if only the heads of both were exposed to view, it would be difficult to distinguish one from the other. Cope[2] has made the following classification of the head and face for comparative study: "The relative size of the cerebral to the facial regions; the prominence of the forehead; the prominence of the superciliary regions; the prominence of the alveolar borders; the prominence and width of the chin; the relation to width of skull; the prominence of the malar bones; the form of the nose; the relative size of the mouth and lips. At birth in the infant ape, the facial region of the skull is smaller than in the adult, the forehead is more prominent, the superciliary ridges are more prominent, the edges of the jaws are more prominent, the chin is less, while the cheek bones are more prominent, the nose is without a bridge, and has short and flat cartilages, the face is flattened, the orbits are smaller and closer together, the mouth is small and the lips are thin. In the typic infant child, as he begins to develop, the cerebral part of the skull more than in the adult predominates over the facial; the superciliary ridges are not developed; the alveolar borders are not prominent; the malar bones are not prominent; the nose is without a bridge and the cartilages are flat and generally short; the eyes are larger." In this last particular the human infant resembles the lemurs, and thus retains an embryonic tendency. In some degenerates this tendency remains unchecked, and the result is unusually large orbits. In other instances the human fetus passes through this lemurian stage to reach and even exceed the anthropoid in smallness and closeness together.

In a paper read before the Odontographic Society of Chicago and the First District Society of New York, and just published,[3] entitled "Degeneracy in its Relations to Deformities of the Jaws and Irregularities of the Teeth," I showed how evolution of the face progressed from the ape to man until it presented a perpendicular line, and that recession of the jaws was still going on. In the evolution of the jaws from birth to maturity there is constant enlargement of the alveolar process brought about by the crowns of the teeth and broadening of the rami by the development of the skull, which is claimed by some writers to stamp the type of jaw. Tomes[4] has shown after repeated experiments that the inner surfaces of the fetal jaws remain the same throughout life; that the development and growth are almost entirely upon the outer plate of bone anteriorly and laterally, and that the jaw grows posteriorly for the purpose of containing the molar teeth. It is this growth that is checked by the other forms of evolution which characterize the race. It is this growth that is checked in development at some period in the evolution of the face and jaws from the fetus to maturity, the result of degeneracy. Having explained the two forms of evolution which take place in the face and jaws, it is fitting at this point to return to the discussion of the type of jaws.

When man was more of an animal than he is today, in other words, when his jaws protruded beyond the perpendicular line, it was possible in brachycephalic and dolichocephalic skulls, to show these distinct forms of dental arches, as represented by Ivy. This, however, could not be relied on, since, as I have shown,[5] it is possible in one family, to say nothing of nationalities, to change from a complete dolichocephalic head to a most perfect brachycephalic, and vice versa, in four generations. Granting that one parent possessed a brachycephalic and the other a dolichocephalic head, what would be the shape of the jaws in the two intermediate generations? These facts are antagonistic to this theory, since the temperaments change more readily, and since the jaws are affected particularly by constitutional and local effects. Again, I have also found that the tendency of all nationalities is toward the mesocephalic type of head, and is strongly illustrated in the negro race, which is supposed to be a long-headed or dolichocephalic race. In an examination of over 3000 negroes in Chicago, I found only six that were long-headed, and four of these bordered upon the extreme mesocepahlic type.

It is easy to see why temperament has very little to do with the shape of the dental arch. Two individuals are married, one a nervous and the other a lymphatic, bilious or sanguinous temperament, all having different jaws, the offspring inherits the jaws of one, the teeth of the other, and the temperament of the child is changed. The local condition is such that the shape of the jaw may change the character of the arch entirely. One child may possess a broad dental arch, but very short, another a very narrow and long dental arch. Hence, classifying the dental arch and vault by temperament is wholly out of the question. Likewise the theory of placing fixed types of jaws with different nationalities is utterly impossible, since all forms of dental arches are observed in each nationality. Some of the primitive races, like the Negro, Chinese, the Latin races, etc., retain the excessive jaws, while the Anglo-Saxon, Scandinavian and Gaelic races in most cases have passed far within the perpendicular line. It is possible for the arrested jaw to be found among the Negro, Chinese and Latin races, and large protruding jaws among the Anglo-Saxon, Scandinavian and Gaelic races. These would be atavistic on the one hand and degenerate on the other.

It remains now to explain how irregularities of the arch are produced, and also why, in the present people (bilious, lymphatic and sanguinary), dental arches can not be fixed and confined to distinct nationalities. It is not that the evolution of the face has assumed the perpendicular line that it becomes of interest to practitioners of dentistry. The teeth do not change (in size) to correspond to the size of the jaws, therefore, at this period, the jaws are as small as they can possibly be to contain them normally. Some years ago,[6] I divided irregularities of the dental arch into constitutional and local: *Constitutional*, because arrest and excessive development of the maxillary bones may be caused by inherited predisposition, but more frequently by constitutional diseases, at any period

[2] American Naturalist, 1883.
[3] Chicago Dental Review, April, 1898.
[4] Dental Surgery.
[5] Talbot: The Etiology of Osseous Deformities of the Head, Face, Jaws and Teeth.
[6] Dental Cosmos, October, 1889.

between birth and the sixth year, resulting in an unstable nervous system. These excessive and arrested jaws may become inherited in succeeding generations. I mention the sixth year because these deformities are never observed in connection with the temporary set of teeth, but invariably after that period. Owing to this unstable condition of the jaws, there may be a lateral arrest of development, with a protrusion of the jaws beyond the perpendicular line. In such cases there may be V and saddle arches, and the face will assume the hatchet shape. *Local*, because irregularities of the teeth may be the result of undue influence of adjoining or occluding teeth. A local condition which might easily be taken for a constitutional cause is when the first permanent molars, from any cause, may move forward, thus diminishing the space required for the anterior teeth.

In the constitutional variety of irregularities of the teeth, arrest of development of the jaws invariably takes place. The jaws being too small to contain all the teeth, nature is trying to overcome this difficulty by dropping the third molars and the lateral incisors, hence almost invariably arrest of development of the jaws exists when these teeth are missing. It not infrequently happens that although the third molars may be missing, there is not sufficient room for the anterior teeth to develop normally. Given a jaw too small for the long diameter of the teeth, a break must take place in the dental arch. After eight years of constant study, watching the development of jaw deformities and making artificially every movement of the teeth which produces them, I showed, in a series of papers,[7] that irregularities of the teeth were merely a mechanic arrangement, depending entirely upon the jaw on the one hand, and the teeth on the other, and that mouth-breathing, thumb-sucking and other external conditions (which up to that time were supposed to be the cause), had nothing to do with them.

Two typic breaks take place, each depending entirely upon the relation of the cuspid tooth to the other teeth. If the cuspid comes into position after the bicuspids have erupted, the break is in the anterior part of the mouth, producing the V variety, which is atavistic, resembling the reptilian type. If the cuspid erupts before the bicuspids, the break is at the sides, forming the saddle arch, also atavistic, resembling the carnivorian type. Modifications of these types are the result of local arrangement of the teeth as they erupt. One of the most marked examples of this is where the temporary molars are retained too long in the jaw, the roots retaining the crowns of the bicuspids in a smaller circle. When the temporary teeth are removed, the crowns of the bicuspids are deflected inward from want of room by the adjoining teeth. The cause and manner of formation of the local variety of irregularities have been described so often in my papers and books that it seems unnecessary to enter into their discussion at this time.

It will be seen therefore that a race or individual, regardless of temperament, whose face and jaw, in the order of evolution, has become arrested at any point within the perpendicular line—depending upon local and mechanic construction of the dental arch—can not possess fixed dental types of jaws and teeth.

103 State Street.

[7] Papers on the Etiology of Constitutional Irregularities of the Teeth, Dental Cosmos, 1888, 1889.

Let us have a Department of Public Health!

A METHOD OF HANDLING ALVEOLAR PYORRHEA.

Presented to the Section on Stomatology at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY GEO. T. CARPENTER, M.D., D.D.S.
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In presenting this paper before this Section, I do so with a feeling that the practical side should not be lost sight of while we are eagerly searching out the scientific. Much has been written on the subject of pyorrhea alveolaris and there is a great difference of opinion still existing as to the etiology, pathology, diagnosis and treatment of this disease. It is not my purpose in this paper to discuss the various points above mentioned, but to give a brief outline of a method of handling these cases which has given me the most satisfactory results. It has been my experience that different cases of pyorrhea differ in their treatment. One case may yield readily to a certain treatment, while another may be very persistent in its pathologic behavior. But thoroughness in diagnosis and treatment is the key to success. In diagnosing any case, get a history of it and decide on the predisposing cause, or cause outside the pocket, which is generally from local irritation caused by wooden toothpicks, ligature, wedging of teeth, or ill-fitting plates or crowns, accompanied with neglect of the mouth. These, or other causes should be removed, and any constitutional predisposition should be corrected, and then we should secure the hearty co-operation of the patient. The disease once established is self-sustaining and it is within the pocket that we must look for, find, and remove the exciting cause, which may be serumal deposits, pus-secreting membrane, foreign substances, or diseased or necrosed margins of process. To make a careful and thorough examination of the pockets I secure dryness with bibulous paper, protect the parts with a napkin, and coat the surrounding gum with cosmolin to protect the parts outside the pocket from the action of medicines. Now dry the pocket and pack with cotton slightly moistened with a 4 to 8 per cent. aqueous solution of cocain. After allowing this to remain several minutes, carefully remove the cotton. The pocket will be found to remain open so that an examination can be made with a mouth mirror. Deposits, if present, can be located before instruments are used for their removal. I operate on but one tooth at a time, or on the interproximal space between two teeth, doing all that I intend to do in that immediate locality before directing my attention to other teeth. All loose teeth having lost two-thirds or more of their natural support are extracted. The best instruments to use in the pockets are spoon-shaped excavators with the shanks bent so as to reach every part of the root, or pocket. They must be kept sharp so that deposits can be easily removed, and the root curretted. The soft parts and margin of process can also be curetted if necessary. The pocket should be cleansed with equal parts of peroxid of hydrogen and pasteurin, or 3 per cent. pyrozone and borolyptol, using a flat-pointed syringe, and pass to the bottom of the pocket. This syringe is designed especially to reach pyorrhea pockets, and can be used as successfully on posterior teeth as in the front part of the mouth, and fluids do not escape beside the point until the pocket is distended and all parts are reached. This will not only antiseptically cleanse, but will also

mechanically carry out all free and loosened particles. The gums are now wiped dry and painted with tincture of iodin, which should be repeated about twice a week.[1] The tooth, if loose, is supported by bands, or ligatures, and if moved by occlusion I grind the tooth, or its antagonist, sufficiently to prevent all movement, so as to procure rest for the affected parts. All subsequent treatment of the pocket should be made by the use of a thinly shaved hardwood toothpick, which can be moistened in the antiseptic and bent so as to reach any location. This should be passed into the pocket as deep as possible without injury to the tissue, or causing pain or hemorrhage, and repeat the application once or twice a week, as long as the toothpick can gain entrance to the pocket. I find that it is seldom, if ever, necessary to make incisions through the gums into the pockets and I but seldom resort to the use of dilute or stronger acids as an aid in softening or removing deposits, or to establish resolution. Antiseptic and prophylactic conditions should be established and followed during treatment, and indefinitely continued throughout life. I recommend a thorough rinsing of the mouth and the use of an antiseptic after each meal. I also recommend a medium stiff toothbrush to be carefully used once in twenty-four hours, and that at night before retiring. This time once established will not be substituted for other hours in the day. The brush will have time to dry, and the elasticity of bristles be restored, which will do the best work at the most needed time. A good dentifrice with precipitated chalk as a base should be used on the brush, after which 1 dram of pasteurin or borolyptol should be taken into the mouth and retained for from three to five minutes, at the same time moving the cheeks and lips so as to force it between the teeth and reach all parts of the mouth, then expectorate and retire without rinsing the mouth with water. The time spent in the successful treatment of this disease depends on constitutional condition of the patient and the extent of the disease, or the thoroughness in which the first operation is performed. The recurrence of the disease comes from a failure to remove the predisposing causes. The reproduction of gum tissue[2] in all interproximal spaces is essential to prevent the lodgment of food or injudicious use of the toothpick. I believe that a thorough removal of the cause, with antiseptic treatment and stimulation of the gum tissue will cure the most persistent case of alveolar pyorrhea.

Columbus Memorial Building.

THE MECHANISM OF MAN—ITS EGO AND COSMOS.

Presented to the Section on Physiology and Dietetics at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY SAMUEL KNOX CRAWFORD, M.D., LL.D.

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CHICAGO, ILL.

None but the creative power from which all things sprang can aspire to the construction of something out of nothing, or the reconstruction of an entity into nothing. Chemistry attempts to describe all material substances, to tell of their ultimate particles, and formulate the laws which govern their combinations and decompositions, but does not assume to create or annihilate the molecule with which it deals or the atom which it fondles. This is in obedience to the inevitable and immutable law of the indestructibility of matter and force. Matter is tangible; force is intangible. Matter is found in states; force is responsible for the state. Matter is also found in kingdoms; force is again ruling it. The one is made to grow from within by the complicated power of nutrition; the other to increase from without by the simpler but tardier function of accretion.

The organic and inorganic comprise everything that occupies space. Animals and vegetables are the organic, and all else is inorganic. Vegetables feed upon the inorganic, and animals are fed upon the vegetables; thus the vegetable becomes the connecting link between the animal and inorganic kingdoms. Animals also feed upon each other and thus become omnivorous.

Animals and vegetables have many characteristics in common, from the standpoint of nutrition. The vegetable takes the mineral from the earth and sea and sky and elaborates it into an organic compound, and from this the animal is fed and his body reconstructed. This is accomplished by force, of which we understand but the phenomena of its work. The force within the animal enables it to convert compounds prepared by the vegetable into tissue of its own and decompose others into their constituent elements, from which it forms new combinations for its own peculiar purposes. Thus sugars and starches are formed in the vegetable, of carbon, oxygen and hydrogen, to be decomposed into hydrocarbons and carbohydrates in the animal and formed into fat.

Chemic combinations and decompositions are accomplished by force within the body as without. This is but a particular form of the general force to which all matter is subservient, but of which animals and vegetables have the employment in the performance of their functions, and must not be confounded with that other and higher form of the same force which we call vital force. Hence it follows from this that the less decomposition and recombination required to transform vegetable products into pabulum for the animal to assimilate, and the less assimilative force to be employed the greater the conservation of force within the body will be conduced. The hydrocarbons as well as the carbohydrates are heat-producing foods and serve the animal economy in the capacity of fuel. It follows that, to accomplish the final act of combustion and the evolvement of heat, the greater economy is, in pabulizing, for the animal, to employ those articles that require the least amount of chemic action; and perforce asssimilation demands the minimum amount of vital effort.

This is all on the principle that seasoned wood is more economic fuel than that taken direct from the growing tree. As animal bodies radiate heat from within their fabrics, as do other bodies, in the general equalization of this form of force, it follows that in a climate whose temperature is zero, a much larger amount of heat-producing food will have been required to sustain a given temperature within than in one whose thermal conditions range high toward the third-figure standard. This is a fact attested by common observation. Nature has so managed her affairs in the animal that the redundancies not

[1] Dr. Talbot: Pyorrhea Alveolaris, International Dental Journal, April 1896.

[2] Reproduction of Gum Tissue: Dental Review, Nov. 1897.

required to sustain temperature may be stored away in odd places about the fabric as so much surplus fuel in stock, and *this is fat*. As a factor in the cosmos, fat plays a conspicuously important part, for good in due proportions and for evil in disproportions.

But the organic kingdom abounds in another class of compounds embracing an additional component element. Nitrogen is the representative of a class of compounds that enter into all the contractile and protective tissues, as carbon is of the heat-evolving principles. Nitrogen, then, may be said to be to the muscular and fibrous system what carbon is to the combustion of the body. Hence the nitrogenous and carbonaceous principles or the nitrogenized and non-nitrogenized organic compounds. Carbon, hydrogen, oxygen and nitrogen are the cardinal elements of the animal economy and for the purposes of this paper the others may largely be eliminated from consideration. Muscular action and physical endurance, then, depend largely upon a due amount of nitrogenous matter in the pabulum from which repairs are to come. In like manner, when resistance to low temperature is required, carbon must have been supplied in amount equal to the waste to be endured from the standpoint of fuel, to contend with the radiation incident to environs. If more food be taken than the economy requires for consumption in molecular action and fuel, the surplus must be stored somewhere about the fabric or be otherwise disposed of, and hence redundancies become matters of the gravest importance, and the overflow becomes a balance of power for health or disease. Overflow deposits are typic as sources of miasms and infections, and hence the more nearly the supply can be made to conform to demand, the more certainly will safety ensue.

The mechanism of man may be said to consist of the spiritual and physical bodies, the one within the other, the one atomic, which is a form of force that, like other forms of intangibles or imponderables, can only be studied by its phenomena. The cosmos may properly embrace the entire mechanism, and the ego, consisting as it does of the spiritual man or soul, is the controlling factor of it all. As the play of the conscious self upon the whole mechanism is the play of the atomic upon the molecular structure or tangible body, it becomes a matter of great concern as to the quality of the matter or molecules entering into the composition of the parts whose functionation leads to the accomplishment of acts desired.

The disposal of surplusages and effete matter eventuates from the various forms of the general force obtaining in the fabric, and therefore, there must be a system of sewage; hence the organs of excretion obtain. If in any instance the work to be accomplished by these emunctories be too onerous for their capacity, it becomes a matter of endurance and a question of time as to impairment, and hence vitiated function In this age of serious thought and painstaking investigation, every physician will acknowledge and every surgeon accord that diet is of the first importance in the management of the various ailments they are called upon to combat. The hygienist may employ and the sanitarian adopt the most efficient measures at their disposal in the practice of their art, and yet none so good and so masterly effective as that of dietetics. All this is subservient to the inexorable law of waste and repair of life, and the exchanges must, under the various vicissitudes of life, be provided for in proportion to the requirements from function and environment, or the penalties paid.

If an immature man be placed in a climate of high temperature, where moisture abounds in the heated atmosphere; if he be clothed in raiment whose texture poorly conducts the heat from his body at best, fed upon a diet consisting largely of carbohydrates, and required to perform severe and prolonged muscular functions, the balances of waste and repair must become embarrassed and development impeded. The systemic sewerage must of necessity become deficient, and his body a shining mark for infectional miasms. The young soldier in the field in time of war, habited in regulation clothing, fed upon the ration of tradition, fat bacon, hardtack and beans, in a climate of moist atmosphere and scorching sun, with a temperature hovering about the three-figure record in the shade, and required to do but the minimum amount of military duty incident to active campaigning, must soon become an object of disease from head to foot. If he survives the dangers of infection from the numerous foci that menace large armies and unsanitary conditions, generally he will have laid the foundations well and securely for a life of fatty ills too numerous for the vocabulary of most writers to describe. War is a cruelty and defies refinement, but as a necessity it appeals to the impulses of humanitarians and scientists to avoid the cruelties of vicious diet and the filth that betokens culture media.

Science of today does not recommend fat bacon and half-cooked beans as articles of diet from a sanitary standpoint, nor does the spirit of humanity suggest the ordinary army ration of the past as a suitable food for the brave soldier who voluntarily takes his life in his own hands in defense of his country and its honor, and in behalf of human interests and liberties under the tropics. The spirit of the age and the dictates of Christian sentiment deny that an American volunteer soldier becomes a machine at the moment of muster, and thereafter as such, is not entitled to the best sanitation that science may suggest, not incompatible with the exigencies of war. The article of primary importance in all diet lists is pure water, and the purest and best of that is distilled water. The purest ice is the artificial, which is made of distilled water.

A division of soldiers should contain four brigades; each brigade should be composed of four regiments, and no regiment should be allowed to fall far below a thousand men and officers. Every division in the field should have its field-hospital equipped in every regard with up-to-date appliances and conveniences, which would include an abundance of pure water and ice. With these articles as a base for the equipment, all else would be an easy matter of attainment. A division hospital should never be more than a half-hour's march from the remotest regiment of its composition, and if equipped with a good artificial ice machine could be the fountain at all times at which the canteen may be filled with the purest and coolest water for all. Thus armed, an army of invasion would be invincible, even under the equator, not only to a wily human foe, but its surgeons could grapple even-handed with foes of the infective type, which are far more to be dreaded.

The writer feels impelled to press this question in the face of existing conditions, as he knows whereof he speaks, from an experience of years in the field beneath a southern sun, and amidst swamps and in the thickest of miasms. A well-selected diet of articles suited to season and climate and service, whatever

that may be, is the most economic measure that can be adopted in the management of large bodies of men, whether it be in civil or military life, and whether it be viewed from the life-point of the present, the health-point of the months and years to come, or be considered from a commercial point of view.

As a business man, I would be glad of a contract with my government to furnish any division of any corps now organizing for offensive warfare in southern climes, with the purest and best of water and ice throughout the service of the command, for an amount of money equal to the pensions falling due within one year, as a result of the ravages of typhoid fever and other infectious diseases of any other command of equal strength *not* so provided for and under like conditions of service. And as a further factor of the contract I would be glad of the opportunity of accepting the present ration of the same command and furnishing another infinitely more suitable for, and more acceptable to the rank and file of the command, receiving the pensions due in two years to the crippled survivors and widows and orphans of deceased soldiers from sunstroke, rheumatoids and diseases of the brain and spinal cord, from an equal number of men not so dieted, but doing service under like conditions, as compensation for my trouble, and so confident do I feel of this that I would expect to grow immensely rich off the proceeds.

But far above the dollar stands the moral of the equation, and when generations yet unborn are taken as the representative of x, the problem becomes a serious one and the mechanism of the future man with his ego and cosmos bids us move altogether in his interests. Let the door of yesterday be closed and tomorrow's door be opened.

CARDIATION.

Presented to the Section on Physiology and Dietetics, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY EPHRAIM CUTTER, LL.D. M.D.,
HARV. 1856, UNIV. PA., 1857.
NEW YORK CITY.

Cerebration is a general term for the functions of the cerebrum and cerebellum. Manipulation means the functions of hands, and the writer thinks that it would be well if cardiation and its fellow, cardiate, were commonly used.

The heart is an autonomy like the brain, eye, ear, epithelium, etc. Indeed, some concede autonomy to every cell in the human body. Hence it is modest to claim autonomy for the heart on general principles for the following reasons: The heart has nerves enough of its own to run it. Some three hundred years ago a Dutch anatomist executed a life-size copper engraving of the cardiac ganglionic nerve centers. The heart was covered with white ganglia about half an inch in diameter, connected with radiating nerve-fibers, like streets or railways between cities. While a medical student, I killed a fresh-water snapper turtle of about thirty pounds weight. The heart, entirely removed, beat regularly for more than twelve hours. If this is not autonomy, what is? How much more can a live heart undisturbed *in situ naturali* act of itself?

Some years ago, at Hartford, Conn., was a murderer who was to be hanged. He tried suicide, as manifested by curious respiratory symptoms and oppressed heart action. He was treated and executed a few days after said perplexing symptoms appeared. The autopsy revealed a small, healed narrow scar, one-half inch long, just below the left nipple. In the heart was a blade of a pocket knife three to four inches long, completely buried! Happening to be there I saw both heart and blade. The history seemed incredible, but the high character of the medical gentlemen, and the exhibit are beyond cavil. Here indeed was autonomy allied to that of the above turtle's heart.

The heart not an autonomy? How then does it bent all our lives long, whether we are awake or asleep, conscious or unconscious, active or inactive? Oliver Wendell Holmes taught us to observe the live hearts of land snails in motion, in formation and *in situ naturali*, through the transparent shell of the embryo. It is a marvel of microscopy! I have seen anencephalous babes born at term where the development was perfect, save the entire absence of the cerebrum and of the bones of the cranium above the frontal arches and the ears. If the head is absolutely needful to the heart, these monsters could not be. And yet their hearts and bodies are apparently perfect. Thus we have another item of evidence to prove the heart's autonomy.

If we run on a level ground, ascend heights, lift heavy weights or do anything that requires a greater expenditure of strength, then the heart beats harder and faster. What better reason for this than that the heart nerve-centers know they must supply more force to meet these new demands, or else the united autonomies we call the "body systemic" are imperiled if not killed. The heart has a governor in its nerve ganglia, like a steam engine, but it is a more perfect governor than any other. How often four to twenty times more work is put on the heart suddenly in running up stairs! How long our hearts stand strains which in like proportions would smash the best Corliss steam engine! How quickly the heart ganglions respond! How soon they seem to know when danger comes in overwork! How hard they try to avert it by palpitation, pain, tumultuous action, pounding impulses against the ribs so as to break them (Old Author). The cases were probably old syphilitics with fragile bones.

Sometimes the heart substance ruptures from its own violence specially in psychologic distress, as in the crucifixion of Jesus Christ. The heart is a psychic center of nerve emotions, feelings, passions. In 957 allusions found in the Bible, the heart is referred to mostly as an autonomy in nearly all and sometimes in the strongest language. On the other hand, the Bible has less than 500 allusions to the head as an autonomy. One reference may suffice as evidence—"The fool hath said in his heart there is no God!" It seems he was not such a fool as to say it in his head!

We love, we hate, covet, cherish (even murder), yearn, are happy or sorry, are strong and weak in our hearts far more than our heads. The Bible says our "hearts are deceitful above all things and desperately wicked." Who can know it? The Bible never speaks thus of the head. It calls the heart the "temple of the living God," but the head never has such words said of it.

Every physician knows that the heart will live and work after the head is practically dead. The sympathetic nerves do not wholly control the heart. They could not have had anything to do when the aforesaid turtle's heart beat twelve hours after removal from the

body. The head may drive the heart as the jockey does a horse but the horse will drive itself as an autonomy. I once drove my horse, Billy Pool, off 20 miles in a new direction. Returning I threw the reins over the dasher and the horse drove himself all the way back, turning out for teams both coming and going, and clearing corners just as well as if I drove him. So may the heart drive itself, independent of the head. The heart suffers when other autonomies, the head, liver, kidneys, skin, etc., are out of order and use up so much *dynamis* (vital force) as to steal from the heart that knows no rest.

I think that three-quarters of heart troubles in women come from uterine lesions using up the *dynamis*. This may be over-estimated, but there is so much of this causal relation that no specialist of heart disease can afford to overlook uterine diseases. Note how our vernacular treats the heart as an autonomy. What does the expression "he has no heart" mean but that the heart's compassions are so stifled as not to yearn? But how can this be if the heart is not an independent organ?

We say "hearty food," meaning that such aliment strengthens or dynamizes the heart. Were there no autonomy this would mean but little.

CLINICAL LESSONS TAUGHT BY CARDIATION.

Lessen heart work and then Nature will cure by having dynamis enough to do its work with. It is wonderful how Nature cures this mighty engine while it is running and working, Man made engines stop running and go into the repair shop. "God, in whom we live and move and are," through His laws, i.e. Nature, repairs the unceasingly beating sick heart, a task that is impossible to man who has much to do, as he can destroy if he can not create. In other words rest the heart in and between its beats, by position, by keeping still, by "laying low," figuratively and literally, by freeing the body from all compression and tight environments, by lightening work, by removing all causes of psychical, mental, intellectual, sensual (in its best and worst meaning) and of physical excitement, by lessening the friction of the more than 100,000 miles of capillaries, in an adult male, *a*, making the blood or normal dilution with water, *b*, removing the adhesiveness of the red- and white-blood corpuscles, the massiveness and abundance of the fibrin filaments, the amorphous and crystalline blood gravels or crystallized bodies, such as oxalate of lime, cystine, uric acid and its salts, triple phosphates, cholesterin, etc.; removing thrombi and emboli of fibrin, gravels, fat, leucocytes, cryptogams, in fact, making the blood stream normal by proper feeding and medicines. In this way a heart that has grown large from its overwork will reduce down to normality, and valvular lesions will be restored to health. I have seen this done. If the heart is fattily degenerated, the diseased muscular fibers will be replaced by normal fibers, and if time enough is had even the stony deposits are removed. Nature, not medicine, does these things when chances are given by means of rest and plenty of dynamis being given.

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SOCIETY PROCEEDINGS.

San Francisco County Medical Society.

December Meeting.

Dr. KASPAR PISCHEL presented and described a case of

FOREIGN BODY PENETRATING THE EYEBALL.

The foreign body was a chip of iron, and was removed by means of a Habb's magnet which he had made in San Francisco some months ago. The chip of iron entered the eye November 30, at once causing pain and inflammation. This was treated for some days by a general practitioner, the pain subsiding to a great extent, but it was not entirely relieved, and the patient was sent to Dr. Pischel December 6. When seen there was dilatation of the pupil of the right eye, some pain and tenderness, and vision of $\frac{5}{15}$. The wound of entrance could be seen and also a brownish stain in the lens, with an opacity in the posterior portion of the lens, which was cupped. The foreign body could not be seen, and its actual presence could not be detected. The eye was cocainized and approached near to the big magnet, but successive trials by making and breaking the circuit in the magnet did not elicit any pain nor produce any indication of the presence of the particle. The next day the trial was repeated, but on this occasion the eye was not cocainized. Making and breaking the circuit at times caused pain and at others did not. After a number of attempts the iris was seen to bulge when the current was thrown on the magnet, and finally it was drawn to the cornea. An incision was then made in the cornea and a small magnet introduced into the wound thus made; it failed, however, to attract the minute iron chip and the tip of the large magnet was introduced. At the first trial with the tip of the large magnet the particle was drawn out of the eye. It was found to weigh .00068 grams. Dr. Pischel called attention to the difficulty of deciding whether there is or is not a foreign body present. In this case the symptom of pain on closing the circuit and making the large mass of iron magnetic, was not present; it has been claimed that when the magnet is approached to an eye which contains a particle of iron or steel pain is always a symptom. This is now shown to be not always the case. The question might be raised, "if there be a foreign body in the eye and there is no inflammatory trouble, why not leave it alone?" The use of the large magnet does not introduce any danger, and we know that there is always possibility of sympathetic ophthalmia when a foreign body is allowed to remain in the eye.

PHILIP MILLS JONES said: The feature of particular interest in this case is the fact that such an exceedingly small particle of iron could be drawn from such a distance, for it must have been lodged behind the lens. In the testing of the magnet which Dr. Pischel used, and which I had the pleasure of designing for him, I found that the action on such very minute particles was very small, and I should not have thought that the magnet would attract a piece of this size at the distance which it must have been. This case goes to show that the big magnets are even more satisfactory than had been supposed. The absence of inflammation may doubtless be explained by the fact that the chip of iron, when struck off by the blow of a hammer, was probably heated to a high temperature. We see such particles flying as sparks when iron is struck by a hammer in the dark. The heating would quite effectually sterilize the chip.

Dr. W. F. SOUTHARD said that he had intended to call attention to the point made by Dr. Jones, as to the sterility of these chips of iron. He had seen a great many of these cases of iron in the eyeball, when connected with the Massachusetts General Eye and Ear Infirmary. Rarely in a case of iron penetrating the ball, when it was in the shape of a chip struck off by a hammer, was there any inflammatory trouble following the injury.

Dr. PHILIP KING BROWN reported to the meeting

A CASE OF ACETANILID POISONING.

The case was of unusual interest for the reason that it had been so carefully studied both before and after death. The patient was a male, 37 years of age. He had been for some years rather constipated, with frequent headaches as a result. About January 22 he called in his lodge doctor, who left a prescription calling for 60 grains of acetanilid in 10 grain powders, with instructions that one powder was to be taken, and if that did not give relief another could be taken at the end of an hour. The man took five of the powders in quick succession, but without relieving the headache. He then became unconscious, cyanotic, vomited, and the family sent for Dr. Kahn, not however, telling him anything of the visit of the lodge doctor, nor of the taking of the acetanilid; indeed, the fact that he had poisoned himself with this drug did not appear till just before his death. For thirty-six hours he remained at home, was delirious, cyanotic, jaundiced, and seemed to complain of pain in the left side of his head and left umbilic region. There was also vomiting, with occasional chills. When removed to the hospital he was carefully examined, but no positive diagnosis could be made. He was then delirious, had chills, jaundice, almost continuous vomiting, with a temperature of 100.2 degrees, pulse 78, and shallow respirations. Cyanosis was marked, but examination of the heart failed to reveal anything. There was considerable cough, with expectoration of thick mucus. The abdomen was flat, but the viscera appeared to be normal. There was no hemorrhage of the mucous membrane. The urine was at first clear, but later became deep red in color, and about two days before death was entirely suppressed. It was alkaline, s. g. 1016, coagulated on boiling, and contained large numbers of cysts, yellow and brown in color. The thirst, vomiting and cough with expectoration were almost continuous up to the time of death, which occurred on the sixth day after entering the hospital. For the first day he was given milk, and one-sixtieth grain of strychnin hypodermically; but as he vomited all the milk at once, and as the circulation was so poor that the strychnin was not absorbed by the skin, he was subsequently fed by the rectum, and the strychnia was also given in the same manner. The vomit was a thick green mucus. He was perfectly unconscious all the time. The reflexes were at first exaggerated, but later were lowered. The temperature dropped, becoming subnormal and reaching 75.5 degrees just before death. The circulation was at all times very poor, so much so as to prevent any attempt at medication through the skin. After the fourth day blood appeared in the stools. Oxygen was not used. Blood examination made shortly before death showed a very marked destructive process going on in the blood corpuscles, together with evidences of attempts at reparation. The nucleated elements were largely in excess. The blood was examined from time to time throughout the period he was in the hospital, and the destruction of blood-cells was seen to be progressive. Some of the clinical features noted were as follows: There was no anesthesia, and for nine days after taking 50 grains of acetanilid there was marked hyperesthesia; the motor and sensory functions were all right; the arterial pressure was low throughout the time of illness; the respirations were shallow and slowly increased, reaching about thirty six just before death; the temperature was subnormal; the alkalinity of the blood was reduced 80 per cent. The colored matter in the urine was found to be iron-free hematin, on spectroscopic examination. The following conditions were found on autopsy: In the abdomen, the liver and stomach were normal; the spleen was slightly enlarged; the gall-bladder was found filled with dark, sticky, green bile; the kidneys were enlarged and showed a condition of nephritis which seemed to be recent; the heart showed fatty degeneration; the valves were all thickened, though competent; there was a large clot in the right auricle, which was probably antemortem; the lungs showed evidence of previous damage and a catarrhal condition; frothy, bloody mucus could be squeezed out of a cut section; the intestines were the seat of a chronic catarrhal inflammation and were covered with a thick green slime.

Dr. J. HENRY BARBAT said the death is probably only one of a number that have occurred in this city, caused by taking the so-called headache powders. The amount of harm done by these remedies can not be calculated. He had repeatedly seen marked cyanosis follow the use of 10 grains of acetanilid, and while the "acetanilid compound" was somewhat better, he considered it did not contain enough caffein to counteract the depressant effect of the acetanilid. He usually gave a little digitalis also, when making use of acetanilid. In one case where he had dusted a very small amount of acetanilid powder on the surface of the gut in a child, marked cyanosis followed and persisted for some days.

Dr. M. KROTOSZYNER strenuously objected to the manner in which physicians were making use of the coal-tar products, both those in which the formula was known and those in which it was not known. He also called attention to the fact that many physicians were using a proprietary preparation called "antikamnia," said to be composed largely of acetanilid, but of which the formula was not known. He did not consider it at all ethic for physicians to use and prescribe this remedy, as it is a secret preparation, and because it is sold so commonly to the general public as a headache cure. He considered that acetanilid should be used in all cases with the utmost care, and that five to six grains was a good-sized dose.

Dr. H. D. ROBERTSON had seen a number of fatal cases of poisoning from the use of the coal-tar products, and he gave a résumé of the history of these drugs for the past fifteen or twenty years. The more recent of these productions did not seem to be so dangerous as the older ones, acetanilid, antipyrin, etc. It was a question in his mind, whether the prostration was due to a direct action or to the destruction of the blood elements. He called attention to the marked anemia following the use of trional for long periods, and suggested that the destruction of the blood corpuscles would account for the anemic condition.

Dr. E. E. KELLEY said that he was inclined to think that the powerfully depressing action of acetanilid might be caused by the poisoned condition of the blood. Dr. Brown had showed that the heart's action remained practically normal and also that the blood was profoundly affected. Could not the depressing effect and the later effect on the heart, be due to this primary action on the blood? He also suggested that the complete suppression of urine so long before death would seem to show a previous disease of the kidneys, which may have affected the action of the acetanilid and have had something to do with the cause of death.

Dr. HUNKIN said that the extent to which these headache remedies were being used was most distressing. He had recently been called to see two girls who were feeling very much upset, but could not account for the trouble. They were markedly cyanotic, languid and listless, but complained of no pain. He found that the entire family was given to using large quantities of a remedy which they all took at the slightest provocation, and for almost anything from constipation to backache. They were evidently suffering from coal-tar poisoning.

Dr. HAROLD BRUN said that the question had frequently presented itself to him, Are the coal-tar products, acetanilid, etc., heart depressants or not? He thought they were not, but that, as had been suggested, they owed their depressing action to the effect which they had almost immediately upon the blood.

Dr. SOUTHARD called attention to the personal equation, which seemed to have missed the attention of the previous speakers. In his own case two or three grains of acetanilid would have a maximum effect, and anything more than that was quite depressing.

Dr. E. G. FRISBIE also mentioned the personal equation, stating that he had frequently noticed that some persons could take very large doses of these drugs, while very small doses would have unpleasant effects with other patients.

Dr. BROWN, in closing the discussion, said that there was no doubt of the actual depressing action of these drugs. In the case reported, the administration of strychnia in large doses was all that kept the heart's action up. The drug evidently had a depressant action on the heart muscle direct. He said that susceptibility was a noted characteristic of these drugs, and was most marked in the case of acetanilid. He considered three grains the maximum dose, and that anything more than this amount should be given with great caution. In answer to a question, he said that the bone marrow was not examined in the case reported, but the brain was very carefully examined and showed nothing pathologic. The jaundice was present from the outset, and was progressive. There were no hyaloid nor fine grained casts, and the appearance of the kidneys on postmortem examination showed that the inflammation of those organs was not of long standing The causes of death were the destruction of the blood corpuscles; the blocked-up kidneys, causing suppression of urine; the heart failure and the persistent vomiting. Starvation played a good part in causing death, and had it been possible to keep the patient nourished he would perhaps have recovered.

Dr. THORNE reported three cases of general peritonitis following pelvic disease, in which the patients were in extremely bad condition when operated upon. He said that they called attention to the fact that operation should be undertaken in many cases when there was apparently no hope whatever of recovery. The result was sometimes marvelous. In the

cases reported the temperature ranged from 103 to 106 degrees, there were chills, great pain and marked collapse, yet recovery followed in all. The fourth case was one of septic infection from a fibroid, which had broken down and was discharging into the abdominal cavity. In this case the antistreptococcic serum was used for twenty-ssven days, but with no good result, and the patient was then operated upon, with recovery. He found that after the injection the temperature rose and then fell. He did not approve of washing out the abdomen, but carefully wiped off the parts with gauze wet in hot salt solution. Drainage should be ample. He called attention to the fact that the healthy peritoneum has a great resistivity to infection, but that after years of repeated attacks of pelvic inflammation it loses this resistivity, and then comes an attack of general peritonitis, often fatal. He considered the danger of operation, due to opening a pus sac, very small.

Dr. BEVERLEY MACMONAGLE said he had listened to a paper at the last meeting of the society, in which a number of cases were reported, the operation per vagina having been performed; most of the cases recovered. The abdominal operation had been performed in all the cases reported by Dr. Thorne, and they too had all recovered; one was therefore in some doubt as to which operation to choose. He thought that the vagina was not the point of choice for operation, however, for one could more easily operate through the abdomen and less damage could be done. Whenever possible, a portion of the ovaries should also be removed, for it was useless and a cause of recur rent trouble in not a few cases. He believed in flushing out the cavity with salt solution, and frequently left a quart of the salt solution in the abdomen, closing the wound entirely. When there was general peritonitis with true septic pus, he believed it was essential to thoroughly wash the cavity and leave the salt solution in when closing the wound.

Dr. J. HENRY BARBAT quiete agreed with what Dr. MacMonagle had said, but thought it advisable to make the drainage through the vagina in a large number of these cases. It could be very easily done, was perfectly safe, and gave the best possible drainage.

Cincinnati Academy of Medicine.

Meeting of Nov. 21, 1898.

Dr. JOSEPH RANSOHOFF exhibited a male patient, about 30 years of age, on whom he had performed, a short time before, a partial operation of removal of the urinary bladder. Several years previously a suprapubic operation had been performed for supposed stone, but nothing found, and the patient had improved considerably after the operation, but of late his cardinal symptom, hematuria, had again come on. The blood, as a rule, was intimately mixed with the urine, so that suspicion of the kidney as the organ at fault was at first held. Occasionally, however, clots of blood were expelled, and even pure blood. On opening the bladder by suprapubic section, the trouble was at once discernible: a large tumor situated upon and infiltrating the anterior bladder wall. So extensive was this infiltration that anything like complete removal of the growth could not be performed without also taking away a section of the bladder. Accordingly the abdominal incision was greatly enlarged, and a large oval resection of the anterior wall made, including the tumor. The wound was then closed, the lower part being packed and drained with gauze. Healing ensued, leaving a very small fistula. The microscopic examination showed the tumor to be a carcinoma. As the history of involvement covers a period of about five years in all, it is possible that the primary growth may have been papillomatous in character.

Dr. LOUIS STRIKER read a paper on "The General Practitioner and the Optician vs. the Oculist," which was discussed by Drs. S. C. Ayers, Tangeman, D. T. Vail, Marcus, Drury, DeBeck, Christian, and the essayist.

Dr. ROBERT SATTLER reported a case of a woman who had first presented herself for proptosis. The inferior orbital plate had been pushed upward and forward, and by narrowing the orbital cavity, had caused protrusion of the eyeball. It was thought that the case was one of osteosarcoma, and operation was advised and accepted. The incision was begun a little above and an inch external to the outer margin of the orbit and was extended in a curved manner downward and inward, coming up along the side of the nose about on a level with the beginning of the incision. Exploration of the maxillary sinus revealed nothing beyond excessive rarefaction, so great indeed that a large hen's egg could have been easily introduced into the cavity. The orbital plate was found pushed upward and was relieved. The frontal sinus was also very large, readily admitting the little finger. No fluid or tumor formation was present in connection with either sinus. The external incision was closed, leaving drain to both cavities. The lids were sutured together with interrupted sutures so as to avoid dangerous proptosis. At the present time, the stitches having been removed, the eye is gradually returning to usefulness.

Dr. F. W. LANGDON presented a patient, aged 71 years, who about a month ago, while in bed, was seized with coma; the rapidity of the seizure was unknown. On recovering it was found that he was afflicted with right hemaplegia involving face, arm and leg; that he also had right homonomous lateral hemianopsia; and anesthesia of the right arm and hand. Since that time he has been rapidly recovering from his paralysis, and is now able to walk, though with an ataxic gait. It was discovered during his recovery, that a peculiar form of aphasia existed, which greatly aided in locating the site of the lesion. He was able to remember but not to recollect. When a spoon was held up for his observation he was able to remember that he had seen such an object before, but could not tell just when nor for what use. Yet he knew what a spoon was when the name was spoken. He was able to say "spoon" without difficulty. He was able to answer simple questions with intelligence, but could not recall the names of objects even when they were put in his hands, and he had the muscular sense in addition to help him solve the riddle. A bell was rung behind him, and he was able to tell instantly what it was; but when the bell was showed to him and put in his hands, the tongue being held to prevent its ringing, he was not able to tell what it was. This condition was diagnosed as subcortical visual parapraxia. There was also alexia present. There were some other symptoms present which made him regard the lesion as a thrombosis affecting the posterior artery of the internal capsule, also interfering to some extent with that part of the optic radiation going to the left angular gyrus. The hemiplegia was due entirely to pressure, for with the removal of pressure the man was regaining the use of his paralyzed limbs.

Dr. JOHNSTON again presented the infant he had brought before the Academy about two months ago (vide JOURNAL, Oct. 1, 1898, p. 807). In the interim he had operated upon the lumbar spina bifida; it was found to be a meningomyelocele, only a few fibers of the cauda, however, being spread out over the sac. A fusiform section was taken out of the membranes and also out of the skin, and both wounds closed by separate rows of sutures. The child, now five months old, made a splendid recovery, healing occurring by first intention. The child had no convulsions after the operation. The wound was constantly contracting into a firm scar. It will be remembered that the child had also congenital clubfeet, congenital hydrocephalus and imperforate anus, the latter having been relieved a few hours after birth. As far as the mother was able to tell he is as intelligent as her former children, all of whom are healthy, were at the same age.

Dr. GUSTAVE ZINKE reported five cases of abdominal section and presented specimens: 1. Large interstitial fibroid, weight twelve pounds. 2. Small superitoneal, multiple fibroids. 3. Ovarian cyst with strangulated pedicle complicated with pregnancy. 4. Ruptured tubal pregnancy (early) with hemorrhage into peritoneal cavity, supposed to have ruptured during a curettement of the uterus; abdomen opened two days after the latter operation; recovery. 5. Small ovarian cyst; small subperitoneal fibroid.

Dr. E. H. SHIELDS presented two pictures of skin affections, the first in oil, irradicable pigmentation following a specific eruption. The disease had not been diagnosed by his former physician, and the patient had been taking Fowler's solution for a considerable period. The Doctor thought that the arsenic was probably the cause underlying the pigmentation. He did not think the condition could be relieved. It was but the second instance he had seen in over a thousand cases of syphilis. The second picture was a water-color illustrating a case of herpes tonsurans maculosa. A third case was reported and specimens presented, of small round uric acid stones about forty-five in number, evacuated from the bladder, but presumably from the kidney, though the patient had never had an attack of renal colic.

Detroit Medical and Library Association.

Regular Meeting, December 12.

Dr. L. J. LENNOX read a paper on "Contracted Kidney, with Special Reference to its Syphilitic Etiology," and said that where a chronic condition, resulting in a shrunken kidney, is found with extensive destruction of the tubular substance and overgrowth of the interstitial connective tissue, the condition may be described by any of the following terms: contracted kidney, cirrhotic kidney, granular degeneration of the kidney, red kidney, gouty kidney, arteriosclerotic nephritis and renal sclerosis.

In describing the contracted kidney most authorities claim that in the beginning the disease is obscure, no distinctive symptoms occurring until uremia shows itself, yet some authors speak of the bounding pulse from hypertrophy of the left ventricle of the heart and a slight swelling of the feet and ankles, as directing our attention to the kidney. The urine is acid, copious, except in the last stages, when it is scanty, low in specific gravity, occasionally showing the presence of albumin, which is constantly present later on in the disease. Albumin-like tube-casts are few in number. Hypertrophy of the left heart and sclerosis of the arteries is constantly present. The vision is impaired, the ophthalmologist often being the first to discover the real nature of the disease.

The main symptoms enumerated by the author were dizziness, headache, drowsiness, convulsions, stupor, delirium, vomiting, nausea and restlessness. As to the etiology, gout was placed at the head of the list, then lead poisoning, business care and worry, hereditary influence, valvular heart disease, stone in the kidney, alcoholism, exposure to cold and syphilis. The Doctor stated that most writers admit that the kidneys undergo changes both in the early and late stages of syphilis, but do not give as a cause of contracted kidney enough attention to syphilitic conditions. Syphilitic infection is the most potent cause in the production of arteriosclerosis, which is directly answerable for cardiac, vascular and renal lesions. Syphilis is termed a blood disease, but there is very little change in the blood except in the early stages, when there is a slight diminution in the number of red-blood corpuscles and a corresponding increase in the white.

The Doctor concluded with a history of one case out of three he had seen of contracted kidney, preceded by syphilitic infection, in which the patient inoculated his wife, who passed through all the different stages of the disease. One and a half years after the initial lesion the patient complained of a bad taste, loss of appetite, headache, constipation, accompanying a rise of temperature to 101 degrees; the patient was thought to have typhoid fever. About three weeks afterward the temperature was reduced to normal and even subnormal, but still the lassitude continued. The patient developed great thirst. There was an excessive flow of urine, but analysis showed no albumin nor sugar; casts were absent: specific gravity, 1010 to 1012. Diagnosis was interstitial nephritis. As the symptoms progressed the urine became scanty and indications of uremia appeared. There was no swelling of the feet or ankles, and no albumin was present in the urine. At present there is hypertrophy of the left ventricle of the heart and some paralysis, as dragging of the left foot and difficulty in swallowing and articulation. The diagnosis was changed to that of contracted kidney due to syphilitic lesion.

PRACTICAL NOTES.

Stitch Hole Infection.—Troller finds after extensive investigations that the infection usually proceeds from the skin, and that the most favorable results were obtained with aluminium bronze wire for sutures, which is antiseptic in itself.—*Cbl. f. Chir.*, December 3.

Orthoform for Toothache.—Hildebrandt relates that the raging pain of an exposed pulp in a carious tooth was arrested at once with an application of orthoform, dissolved in warm alcohol, on cotton. There was no further pain for two days, even in eating, when the tampon was renewed, as at first, with the same success.—*Deutsche Med. Woch.*, December 1.

Oxygen to Prevent Vomiting after Chloroform.—Chavannaz reports twenty-three anesthesias, mostly for long and important operations, in which the chloroform was followed by the inhalation of the contents of a bulb of oxygen such as is used in hospitals. In fourteen there was no vomiting; four vomited once, and none vomited enough to interfere with the ingestion of food. *Gazette Méd. Belge*, December 8.

Vaginal Extirpation for Carcinoma Uteri.—E. Fraenkel states that 34.7 per cent. of 311 cases thus operated at the Berlin Univ. Gyn. Clinic have been permanently cured, that is, without recurrence after five years. The percentage of corpus carcinomata cured was still larger, 53. Its benefits are questionable when applied as a merely palliative measure.

Radiographs in Nephrolithiasis.—Ringel has established that oxalate stones cast as distinct a shadow as a bullet; uric acid stones are less distinct, and phosphate stones cast no shadow at all, hence the absence of a shadow is no proof of the non-existence of a stone. The same is true of stones in the bladder. To ensure the best results the patient should empty his bladder just before being radiographed, and in case of nephrolithiasis, the thigh should be drawn up to the body to reduce the natural lordosis.—*Cbl. f. Chir.*, December 10.

Nafthalan in Eczema.—J. Hirschkorn writes to the *Deutsche Med. Woch.* of December 1 that he has been using nafthalan in fifty-two cases of eczema and found that it arrested acute eczema with copious secretions in forty-eight hours, the skin regaining its normal appearance in three weeks at farthest. In subacute and chronic cases the effect is less rapid, but still extremely satisfactory. It is also valuable in eczema of the scalp, scabies and psoriasis, and especially in professional eczema, enabling the patient to resume his occupation sooner than with any other remedy.

Is a Green Intestine Gangrenous?—Begoin states that he found an eight-day incarcerated loop a "fine green Florentine bronze color" at the herniotomy. The loop was not reduced and the patient died four hours later, when tests of the green portion proved that it was not gangrenous. The portion of the intestine was filled with water at a strong pressure, and only an apparently sound part split. He also states that the intestine can be colored green with bile alone, and that a light green color does not necessarily imply any alteration in the intestinal wall. A yellow green, dark, black or bottle green are of worse significance, but at the same time they do not necessarily indicate a serious deterioration in the intestinal wall.—*Cbl. f. Chir.*, December 2.

The Toxicity of Appendicitis.—Prof. G. Dieulafoy has lately been emphasizing the intense toxicity that may develop in the course of even the most apparently benign case. In its usual benign form the toxicity is evidenced by the subicterus, urobilinuria and albuminuria. Icterus, testifying to the adulteration of the liver, is sometimes the notice of a most serious intoxication, affecting the nervous system, with cerebral, bulbar or typhoid manifestations. The only means to forestall these accidents is to suppress the toxi-infective focus in time. "No one ought ever to die of appendicitis." He distinguishes between the infective and toxic accidents, as the latter are much more rapid and fatal and necessitate more prompt intervention.—*Presse Méd.*, November 9.

A Quinin Wash for the Scalp.—The *Indian Lancet* for September 16 quotes from the *Revue de therapeutique* the following prescription, which has been used with satisfaction to prevent the falling of the hair:

R	Hydrochlorid of quinin	ʒ i	31	
	Tannic acid	ʒ iii	493	
	Alcohol (70 per cent.)	1½ pints	7464	
	Tincture of cantharides	ʒ iiss	77	
	Pure glycerin	ʒ iiss	77	
	Eau de cologne	ʒ x	311	
	Vanillin	gr 2		13
	Powdered sandalwood	ʒ i	31	

This mixture, after being well mixed and shaken, is allowed to stand for four days and is then filtered. It is rubbed into the scalp daily for the purpose named.

Acute Mania After Cataract Operations.—A man, aged 92 years, hitherto healthy, and yet very robust, was submitted to a cataract operation on the right eye. The operation was most successfully and quickly performed. Anesthesia was produced by six drops of a 2 per cent. cocain solution. In the second night after the operation, severe maniac conditions set in. They lasted sixteen days. Dr. Fromaget attributes these conditions to a persistent constipation and retention of urine (auto intoxication). During two days anuria prevailed. Afterward a small quantity of urine was voided. After injections of caffein, the quantity of urine increased. Such psychoses are sometimes observed after cataract operation in old people.—*Annales de la Pol. de Bordeaux.*

Rinsing Apparatus for Microscopic Sections.—G. Cruz of Rio de Janeiro prevents the loss of microscopic sections of tissue which so easily escape during the necessary rinsing, by the following simple contrivance, described and illustrated in the *Ztft. f. Wis. Microscopie*, 1898, No. 15: The fragment of tissue is placed in a conic test-glass, and a glass funnel is placed in the glass, just enough smaller in its circumference than the test-glass, to allow water to pass freely between the two, without space enough for the fragment of tissue to be swept along with it. The water enters through a small-sized glass tube, perforated at its lower end, connected by a rubber tube with the receptacle of water, and a larger funnel-shaped vessel below receives the water as it passes upward between the glass and the funnel and pours out over the edge of the former. —*O Brazil Médico*, November 1.

Wagner and Longard's Ether Inhaler.—The upper end of the mask is not open, but is shaped like a funnel with inhalation valves at the lowest part. The ether is dropped into this funnel, passes through the valves and drops below on a very fine wire sieve, on which it rapidly spreads out. A second sieve is at a little distance below, the space between holding a layer of gauze. As the air is inhaled it carries the ether vapor with it in the finest particles, and the anesthesia is complete in a minute and a half to three minutes in women and youths. Men require four to six minutes. The quantity of ether is only 5 to 10 c.c. for children; 15 to 25 c.c. for women and 30 to 50 c.c. for men and hard drinkers. The chief advantage of this inhaler is that the narcosis becomes complete while the patient is still quietly breathing, with entire absence of any period of agitation.—*Cbl. f. Chir.*, December 3.

Rebreyend's Method of Circumcision.—This method is based on the principle of "total resection of the mucous membrane of the prepuce with almost complete conservation of the integument: sacrificing the minimum of skin to the maximum of mucosa." After anesthesia a narrow strip of skin is resected entirely around the preputial orifice, drawn out in front of the gland with forceps above and below. The integument of the penis is then pushed back all around as much as possible, leaving the preputial mucosa attached to the glans fully exposed. This mucosa is then slit from the front backward, with the scissors, to the back of the crown, and the two lateral flaps thus obtained are excised, leaving nothing of the mucous membrane except a narrow retrobalanic collar. The raw edges of this mucous collar and the integument are then sutured with fine catgut. A thin layer of salve or antiseptic powder is applied to the line of suture, which rapidly heals and is always hidden under the new fold of the prepuce, which is exclusively cutaneous. Loumeau reports twenty patients, including children and old men, thus operated, with the most satisfactory results.—*Gaz. Méd. Belge*, December 8.

Electrization as a Purgative.—G. Hunerfauth of Eisenach has found that the galvanic anode introduced into the rectum will cure chronic cases of constipation and produce a prompt evacuation, even in normal persons when the bowels are comparatively empty. The sensation of a desire for defecation lasts after the evacuation and is of the greatest benefit in cases of neurasthenia and hypochondria, who recover their confidence in the restoration of their lost functional activity. Tympanism is abolished, and solid masses, even coprolithic formations, are expelled. The average treatment is two to five minutes in length; the current two to five milliamperes. If there is a sensation of heat, galvano-faradization is best at first, changing to the continuous current later. The patient is usually reclining on his back, the legs lightly flexed on the abdomen, a bolster under his knees if desired: or the treatment can be administered standing. The electrode for insertion in the rectum is large, conforming to the space inside. It is warmed, vaselined, inserted by the patient, and then held by the physician, who can thus control the contractions and ensure that it is in contact with the rectal mucosa. There are no injurious effects from this treatment, which he asserts is "not only a symptomaticum but a splendid curativum."—*Deutsche Med. Woch.*, December 1.

Antitoxin in Tracheotomy for Diphtheria.—At a recent meeting of the Ulster Medical Society, Mitchell (*Lancet*, Dec. 10, 1898, p. 1551) called attention to the prevalence of laryngeal diphtheria in the north of Ireland, as illustrated by a mortality of 3402 from this disease in Ulster during the past twenty years, while during the same period in all the rest of Ireland the deaths from the same cause numbered only 3320. The annual death rate per 100,000 in Belfast and the surrounding district is 14, while the death-rate for Dublin is only 7. The beneficial effect of antitoxin in the treatment of diphtheria and the consequent reduction in mortality were pointed out, while the utility of the antitoxin was more strikingly illustrated by the cases in which tracheotomy became necessary. For years there has been a firm conviction in the minds of the profession in Ulster that tracheotomy in diphtheria offers no reasonable prospect of saving life, and it was therefore performed only on rare occasions, and indeed was rarely recommended. Communication with the leading surgeons throughout the province of Ulster resulted in the collection of eighty-two operations performed for this disease prior to the introduction of the antitoxin. Among these there were only six recoveries (7.5 per cent.). A similar list since the introduction of antitoxin yielded a total of twenty operations, with fifteen recoveries (75 per cent.). The value of artificial respiration after the trachea has been opened in cases in which respiration has been suddenly suspended was particularly insisted upon, and records were given of cases in which this measure had resulted in a restoration of vitality in what appeared to be a death-sleep

Unguentum Crede—Soluble Silver.—G. Schirmer has treated nine cases of cerebrospinal meningitis with inunctions of 30 gm. unguentum Credé in the course of three days, repeating an inunction of 10 gm. at each remission. Combined with this, very hot water compresses were applied to the spine; the nasal cavities were antiseptically cleansed as soon as the patient's condition permitted, and small doses of trional were given, if very restless. All were children, and recovered rapidly, with none of the after-affects so frequently observed with this disease. Edwin Klebs suggests that infection may be carried through the tissues as well as along the lymph and blood system (*N. Y. Med. Monats.*, November), by the leucocytes, which would explain the success of the inunction, and urges tests to demonstrate this, with Credé's soluble silver, as peculiarly applicable for the purpose. O. Werler considers that Credé has suceeded "with his systematically conducted chemic studies and bacteriologic experimentation in filling a gap in therapeutics that has been long and painfully felt by all practitioners, with the discovery of a specific which, without the slightest injury to the vital functions, removes the cause and cures the dreaded septicemic processes by its intense bactericidal power. In this respect Credé's argentum colloidale is absolutely without a rival. In this soluble metallic silver we have an internal therapeutic measure that can be relied upon to successfully control the blood-poisoning due to septic infective substances, if the diagnosis is made in time and there are no serious secondary affections." He finds also that the most effective method to apply it is in inunctions, by which means the medicament reaches the blood by percutaneous absorption, where it ensures an universal antisepsis and disinfection of the entire organism, by the formation of powerfully bactericidal silver salts. He only has three cases to report (*Deutsche Med. Woch.*, No. 40): acute sepsis, a septic affection and chronic multiple furunculosis. The progress of the affection was arrested with inunction, and complete recovery followed promptly in every case (vide JOURNAL, xxx, p. 1414).

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SATURDAY, DECEMBER 31, 1898.

DEATH OF JOHN B. HAMILTON, M.D., LL.D.

It is our painful duty to record the death of the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION on the evening of Dec. 24, 1898, at his residence at Elgin, Ill. The immediate cause of his decease was hemorrhage from a perforation of the intestine, communicating with a large abscess outside of the bowel, which terminated life after an illness of less than one month.

It seems hardly necessary at the present time to enter upon a detailed narrative of the life of one who was so widely and well known throughout the entire country. Born in Jersey County, Ill., on Dec. 1, 1847, his years numbered only fifty-one; but they were years that were crowded with incidents sufficient for centuries of ordinary human experience. Descended from a long line of distinguished Scottish ancestors, his father's family was brought up on the rich prairies of the Mississippi Valley, enjoying such opportunities for early education as were afforded by the village school, the country academy and the classic courses founded by Prof. JOHN GRANT, a learned Latin teacher from Edinburgh, who had found his way to the heart of America. Thus trained and exercised in all the practical affairs of country life, from the hay-field to the village printing-office and drug store, young HAMILTON, at the age of 17 years, found himself drawn into the vortex of the Civil War, where he acquired that experimental knowledge of military life and discipline that was of such value to him during the remainder of his days. At the close of the war he returned to civil life, with an appetite for study intensified by the exercises of the field. Entering Rush Medical College, Chicago, he was graduated three years later with high honors, and immediately began the practice of medicine in his native county. Soon, however, he concluded to essay the career of a military surgeon, and returned to the army of the United States as an assistant-surgeon. Transferred from post to post, he rapidly became acquainted with the vast extent of our territory, and in positions of responsibility gave evidence of that rare ability for the organization and direction of great enterprises that was the prominent feature of his character.

In the year 1876 he transferred his connections, upon most honorable terms, to the United States Marine-Hospital Service. In this service his superior powers at once asserted themselves. He was

DR. JOHN B. HAMILTON.

rapidly transferred by promotion through the round of important stations, rising in rank till within three or four years he had reached the position of Surgeon-General of the United States Marine-Hospital Service. This high office he retained through several different administrations of the National government, winning golden opinions alike from political friends and foes. During this period he effected a complete reorganization of the Service, and contended successfully against repeated invasions of the country by epidemic cholera and yellow fever. Under his direction a rational system of quarantine and isolation was adopted, the necessary encampments were established, and panic gave way to intelligent confidence. In the halls of legislation his influence was as beneficently potent as in the field of medical action, and it is no exaggeration to claim that the most important acts for the security of the public

health by the National Legislature during the past twenty years were originated and guided by the enlightened intellect of Surgeon-General HAMILTON.

But the attractions of civil life finally drew DR. HAMILTON from the sphere in which he had been so long pre-eminent. Always fond of books and the scholastic side of existence, his library grew till it became one of the largest private collections in America. He was Professor of Surgery in the University of Georgetown, and was as actively engaged in private surgical practice as the arduous duties of his high office would permit. Called to the chair of the Principles of Surgery in Rush Medical College, he resigned all his positions in Washington, and removed to Chicago in 1892.

It is at this point that the principal interest of the JOURNAL in DR. HAMILTON is centered. For many years an active member of the AMERICAN MEDICAL ASSOCIATION, he was well and widely known to the members of that National body. An almost universal acclamation summoned him to the editorship of the newly-fledged publication which had undertaken to be the organ of communication between the ASSOCIATION and the medical public at large. The JOURNAL was young in years, and its management was inexperienced, and with comparatively little weight beyond the limits of the editorial sanctum. DR. HAMILTON at once deployed all his administrative faculties, placed everything upon a business basis, and before his death enjoyed the satisfaction of seeing the JOURNAL in the front rank of the medical publications of the world.

Could he have remained satisfied with this victory, DR. HAMILTON might possibly have continued for many years upon earth in the full exercise of his beneficent powers. The leading sanitarian of the country, in all matters of National interest, his advice was sought in every quarter. No medical gathering of National or International importance was complete without his presence. His vigorous form, his genial countenance, radiant with energy and good-will, his persuasive voice, were never-to-be-forgotten features in every such assembly. At home his professional duties, his hospital work, his extensive private practice, were enough to wear out any ordinary man; but he was ever ready to expend his energies in behalf of any worthy cause that appealed to him for aid. In this way he gave much time and thought to the organization of the new Public Library in Chicago, and was most efficient as President of its Board of Trustees. To the surprise of his friends, despite this accumulation of cares, he accepted, in 1896–7, the position of Superintendent of the Northern Illinois Hospital for the Insane, at Elgin, Ill.—an office that heretofore was always considered sufficient to occupy the whole time of an ordinary official incumbent. But the DOCTOR speedily showed his mettle by a reorganization of the administration, that secured improvement in the care of patients, while leaving time for all his other labors—thus illustrating the old observation that among first-class administrators the busiest men still have the most leisure.

Now, alas, this career of action has reached its limit. As we look back upon its years we can more fully than ever appreciate its magnitude and its beneficent efficiency. DR. HAMILTON was fortunate in finding full scope for his remarkable power as a founder and organizer of incipient enterprises. He was fortunate, also, in being permitted to witness the success of his efforts, and he was doubly fortunate in being called to his reward before age or misfortune or any of the ills of life could dim the splendor of his reputation. He has gone, but his works live, and will forever exhibit the impress of his constructive power.

THE PATHOLOGY OF THE PINEAL GLAND.

If the proverb, "Happy is the nation that has no history," be true for other organisms in general, then the pineal body ought to be regarded as a most fortunate organ. That it has had a history and a most curious one, we have abundant proof, but that was long ago, in the Age of Reptiles, to which the memory of man runneth back or reverteth only under the influence of strong drink, and for the last quarter of a million years, at least, it has absolutely ceased to have a physiology or even a pathology. It lies among the brain tissues as inert and almost as irresponsive to the forces about it as a fossil in the chalk beds. That it can continue to so exist generation after generation is proof either of services of extraordinary value rendered in the past, or some as yet unsuspected function in the present. Comparative morphology assures us that it was probably once a median or "vertical" eye, which still exists in some nearly extinct lizards (Hatteria) and possibly at an even remoter period the opening of the primitive mouth, of which its interesting relative, the pituitary body, was the gullet. That it originally reached the roof of the cranium is of course certain, having been pushed down into its present central position by the huge development and backward growth of the originally anterior cerebral hemispheres, which now cover, in our own species, even the cerebellum or "hindmost brain." But unfortunately these facts give us no clue whatever to its possible rôle in the body economy, for it obviously can not now function in any way as either an eye or a mouth, or anything connected with either.

Nor is there any help to be had from a study of its histology. According to the latest researches (OGLE, LORD) it consists of a dense connective tissue capsule from which fibers pass into the interior and form a loose reticulum for the body. In the meshes of this network are lodged rounded and oval nucleated cells

whose protoplasm shows a tendency to become either colloid or amyloid, and by fusing with that of other cells gives rise to the *corpora amylacea*, or "starch-grain," concentric-layered bodies. In the fibers of the stroma are found the calcareous particles known as "brain sand." Nothing that can be clearly identified as nervous tissue remains, although there are a few large columnar cells resembling the "rods" of the retina. Like its now celebrated congener, the pituitary body, it was originally a hollow organ and occasionally traces of the central cavity are yet found.

On account of its central position and the way in which it is wrapped up in the choroid plexus, any attempt to remove it in animals must be attended by such serious injuries to the brain and its internal circulation as to give little hope of any reliable results from experiments in that direction.

Its pathology seems almost equally characterless. It may perhaps be said to possess the usual tendency of all vestiges to give rise to tumor-formation, for considering its small size and sheltered position, a relatively large number of new growths have been reported. The commonest of these, however, are simple cysts formed by dilatation of the central cavity, then comes sarcomata, then gummata, and the only form that is at all characteristic of the gland is the psammoma, or concentrically-layered tumor, with or without calcareous deposits.

Worse yet, with the possible exception to be mentioned later, none of these tumors have given rise to any recognizable symptoms whatever pointing to any disturbance of brain or glandular function, other than that due to the pressure of the growth upon surrounding tissues.

A recent meeting of the Pathologic Society at London was devoted entirely to the pathology of this gland and fourteen cases were reported by the members present, specimens being shown from ten of them. Seven were cysts, four sarcomata, one glioma, one gummatous enlargement and one calcareous deposit. One of the cysts was interesting from the fact that its inner surface was lined with cells containing large amounts of pigment, in the very situation where the choroid coat lay in the ancestral eye, and curiously enough, several of the sarcomata were pigmented ones. After the reports of cases were all in the president called for remarks upon the general subject, but the absolute silence which followed was eloquent of the state of our knowledge of the gland even today. In all the cases reported there was only one symptom which was in any way peculiar or was common to more than two of them, and that was prolonged drowsiness, which was present in four This was of long duration, lasting in one case for three months, and was of unusual character, as it never approached coma and the patient could be readily roused at any time, or would even answer questions without apparently awakening. As Dr. OGLE, who reported six out of the fourteen cases, pointed out, this was most probably due to pressure upon the choroid plexus and interference with the circulation of the ventricles, but it is an interesting coincidence that Dr. PATRICK MANSON has reported the pineal body as found greatly enlarged in two cases of the singular African "sleeping-sickness." The drowsiness of this disease is precisely of this peculiar, easily-roused and chronic character, lasting for months and gradually deepening into asthenia, unconsciousness, convulsions and death. As there are two advanced cases of this disease in the Seamen's Hospital at the Albert Docks at present, the cranial results of the autopsies will be awaited with much interest.

VALUE OF TRANSFUSION.

This operation was known as long ago as the year of the discovery of America, having been performed at that time, according to some authorities, on Pope Innocent VIII. It was not used to any extent, however, until the beginning of the present century, while it has only been of late years that its value in its various modifications has become very widely recognized. At first performed only for dangerous loss of blood, it has in addition proved most valuable in shock, in uremic and diabetic coma, and in the various affections accompanied by sepsis. During the infancy of the operation, direct transfusion of blood from vessel to vessel was practiced, but this was soon discarded on account of its great difficulties and danger, and some bland and harmless solution was substituted. For when blood was transfused, thrombotic and embolic processes were of common occurrence and often resulted disastrously. In addition it was found that the injected blood corpuscles were rapidly disintegrated, naturally giving rise to dangerous embolic symptoms, and further, that any good accomplished was done by the fluid portions of the blood alone. These investigations were pursued still further until it was at length discovered that it was the quantity, and not the quality, to which the beneficent results could be attributed, and that the fluid acted by increasing the intracardiac and intravascular pressure. At the present day a normal or 0.6 per cent. sodium chlorid solution is used.

Another improvement in operation was introduced when it was found that the fluid could be injected into the subcutaneous tissues, preferably those of the right chest, abdomen and buttocks, from which tissues it would be rapidly absorbed. The advantage in this method is that it can be quickly and safely done, and that it can be performed while operative procedures are directed to other parts of the body. The solution is rapidly brought to the boiling point and then cooled to 100 degrees F, when it is ready for using, all instruments having been thoroughly sterilized by heat. Some operators pour the solution into a large funnel connected with the canula by a long rubber tube

and holding the funnel several feet above the patient, use the pressure thus created to enforce the fluid. Perhaps a better way, and certainly a more rapid one, is the use of the ordinary Davidson syringe attached to the canula.

When the indication is most urgent, and particularly where there are septic symptoms to be combated, an emptying of the vessels of their deteriorated blood and the injection of the saline fluid directly into the vessels (veins) has been advocated, and in a case recently reported by YOUNG (*Maryland Med. Journ.*, Nov. 19, 1898), performed with the greatest success. The patient, a boy of 15 years, had been operated on for purulent appendicitis, the pus fortunately having been walled in by extensive adhesions. Immediately after the operation the patient was in fairly good condition, but toward evening rapidly became worse. There were, however, no local signs that the peritoneum had been involved. When the pulse had reached almost 150, with a corresponding high temperature, he was given a nutrient enema, followed by the injection of 700 c.c. of saline solution into the right breast, and by lavage of the stomach. This brought about a considerable improvement in his condition. The next day after the operation he again became progressively worse, and the peritoneum still being apparently free, it was thought that he had developed a general septicemia. Venesection and transfusion were then decided upon for the double purpose of first withdrawing, and secondly diluting the poisonous material remaining in the circulation. The right basilic vein was opened, but only about two and one-half ounces of blood could be abstracted, so weak was the heart's action; 1300 c.c. of saline solution were then slowly injected, and during the operation itself the condition steadily improved. The next morning the symptoms again becoming dangerous, 2500 c.c. were used intravenously, with the result that the boy was soon practically out of danger.

The history of this case has been entered into rather in detail for an article of this kind, but all must admit the importance of the lessons taught by it. In the first place, very few cases, if any, have been reported in which so large an amount of fluid has been injected. One of the most important points in this double method of venesection and transfusion is that they can be done simultaneously, using one arm for the former, the other for the latter. In this manner the blood-pressure can be readily maintained, a most valuable consideration in a state where circulatory functions are so greatly below par. A third point, as suggested by YOUNG, is that the use of large quantities, intravenously, washes out the veins, as it were, and perhaps to a small extent neutralizes the poisons contained in the blood—certainly dilutes them. In most of the conditions in which this method of treatment was employed, the kidneys, as a rule, are not functionating to an extent anything like normal. The introduction of this fluid into the body by increasing the blood-pressure and the amount of fluid into the body tissues as well, to some degree, acts as a diuretic, and even the smallest gain in this direction often means the saving of the patient. YOUNG also touches upon an important speculation as to how much dilution the blood is able to stand. He estimates that the body of a normal adult man contains about 4500 c.c. of blood. His patient, he feels sure, had much less, yet 4500 c.c. were thrown into his vascular system and with the greatest benefit. He argues from this fact, that his primary injections resulted in but temporary benefit, that large amounts of the salt solution should be used at the beginning, advocating in an adult man as high as 7000 c.c. He does not think that the small quantities so frequently given will ever be very efficacious. Among other conditions in which these injections might prove of service, the toxic conditions commonly observed in the acute infections, typhoid, and particularly the coma of pernicious malarial fever, must receive special consideration. Of their use in the former disease there is no literature at hand, but in malarial coma several cases are on record with favorable results.

Lastly, the injection of these fluids into the arteries deserves brief mention. It was thought by HUNTER that this method lessened the danger by bringing the blood more gradually into the general circulation. Even if some air were admitted it would here work little or no harm, while if air were received into the veins, venous thrombi might form, which would undoubtedly seriously embarrass the heart's action. The radial artery is the one recommended by HALSTEAD for injection, and the latter authority lays particular stress on the value of this form of operation in fat subjects.

BUBONIC PLAGUE.

The appearance of this disease in Vienna has created some sensation, and has startled experimenters and laboratory workers. It appears that Drs. ALBRECHT and GHON brought from Bombay the bacilli of this disease, and began a series of cultivations and experiments in the laboratory. Animals were inoculated and examined after death and the specific bacillus was isolated and transferred to different animals, and inoculation as a means of prevention was studied.

This work has been going on for over a year with many very interesting results. The two physicians and an attendant were the only persons who came in direct contact with the virus. The attendant fed the animals experimented upon, handled them, and cleaned the floors, and observed all the precautions supposed necessary to prevent accident. He also disposed of the carcasses of the animals. Suddenly he was seized with the plague and died. Two nurses who attended him were taken with the same plague

and died also. Dr. MULLER, an expert, who had been in India studying the same epidemic on the spot, and who visited the attendant, was also seized with the same disease and died.

All the three physicians had been engaged in the profuse cultivation of this bacillus in its most virulent form, and in the study of means of prevention, and were experienced bacteriologists. They knew of the danger and had provided against accidents up to this time. It appears from a court examination that the attendant, although a trained man and very careful, was often under the influence of spirits. It is supposed that he must have neglected some sanitary precaution in laying down his pipe in an infected place and using it again, or in failing to wash his hands after handling the animals. The nurses and the doctor were equally incautious and lost their lives through this neglect.

The facts pointed out by the foreign journals commenting on this event are that very few accidents occur in the extensive laboratory examinations now going on in all the large cities. The most virulent poisons and bacilli are cultivated and handled without accidents, showing what intelligent care and exact work can do. Of course this event gives renewed emphasis to the danger from this bacillus, and shows that the plague can be grown and spread in any community by the slightest neglect of sanitary conditions.

The London *Times*, after describing this incident, makes a strong plea for greater caution and care in the many infectious diseases which pervade the community and are neglected. The soil for the growth of diphtheria, tuberculosis, and other diseases, is found in all communities, only needing the germ to start into great activity. The hospitals and other places where medical men are exposed, are not yet managed as they should be to avoid the danger of these virulent germs. Every year physicians and nurses die from neglect and carelessness, both personal and official. The teachings of laboratories are enforcing the fact in many ways, that most diseases are entities which can be provided against and prevented, also that the germs can be transmitted and carried, cultivated and grown with certainty.

The great study of the present time is to trace these germs back to their sources, to stop their growth, to direct and control them. This plague is one of the great epidemics of tropical countries. It is mysterious, virulent, and usually fatal. A study of the bacillus and its culture has already thrown much light on the causes, and gives promise of prevention by inoculation, and also the possibility of some serum being found to render the person immune from its infection. To the investigations of the laboratories we must look for light on the subtle bacterial enemies, and the means to control and prevent them.

COMMENTS ON THE WORK OF THE ARMY MEDICAL DEPARTMENT.

We have read with much interest the comments of our contemporaries on the work of the Army Medical Department during the Spanish War, as presented to the profession in the abstract of the Report of the Surgeon-General published in the JOURNAL of December 3. So far as we can learn, the general view of the profession agrees with our own that the document is an able presentation of the facts, and a clear and impartial statement of all the conditions bearing on them, such as might have been expected from a scientific man whose only object was to reach the truth and enable others to do so also. The difficulties which beset the path of the Surgeon-General of the Army are set forth so clearly that one must be an unthinking reader who fails to appreciate the causes which led to unsatisfactory results in particular instances although these causes may not be specified in each particular connection.

The conclusion which we have reached appears to be that which has been attained by most of our contemporaries, that in view of all the facts it is but just to say that "the efforts of the Surgeon-General and his medical officers to meet the terrors of war were extraordinary, and challenge admiration." That these efforts failed to fulfill their intention of preventing the occurrence of preventable diseases was due to the impossibility of controlling the ignorance of the many by the knowledge of the few. We, as a profession, pride ourselves on our recent advances in sanitary knowledge and particularly as to the prevention of typhoid fever, and we teach that sporadic imported cases are the only cases that should be permitted to appear on the hospital registers of a well-diciplined camp. The Surgeon-General of the Army and his officers knew this as thoroughly as we do, but it was impossible for him and them to hold in control the ignorance of the large number of undisciplined men aggregated in our camps during the past few months. We reached this conclusion long before the report of the Surgeon-General was made public. On Sept. 24, 1898, we stated, in these columns: "It is very evident to one who looks on from the outside, that the difficulties encountered by the Army Medical Department were due to the impossibility of having, in so short a time, an experienced and well-disciplined medical force sufficiently strong in numbers to control the sanitary situation in an aggregation of a quarter of a million of men hurriedly thrown together in military camps." Although the profession as a whole may take a high position on sanitary grounds and claim the ability to protect from certain diseases, the ability of the individual medical man is limited by many and powerful combinations of conditions. One medical weekly considers it shameful that typhoid fever should have spread in our camps, but we do not take such high ground as

this. Typhoid fever has heretofore been a dangerous visitant in every camp of newly-raised troops. When sanitary knowledge is generally diffused and sanitary rules are universally appreciated and followed, we may expect a change in this respect; but recent events have shown that it is too soon to expect this now. All we can do is to strive earnestly for betterment. The daily press has thrown the blame of the occurrence of preventable diseases in our camps on the shoulders of the Surgeon-General, forgetful that if the doctor is to be held responsible, it is not the Surgeon-General, but the regimental surgeon who should be arraigned, for if each regimental surgeon had been an efficient practical sanitarian, able to combat sucessfully against his insanitary surroundings, there would have been no typhoid fever in the brigades, divisions or corps. One New York daily claimed that the difficulties encountered by the Medical Department were due to a want, on the part of the Surgeon-General, of that general executive ability to put his extensive knowledge to effective use. A valued Eastern journal replied pertinently to this by comparing the conditions suddenly placed before the Surgeon-General of the Army at the outbreak of the war, with those confronting the manager of a large department store whose business, suddenly increased ten-fold, had to be carried on by a 900 per cent. addition of awkward and unskilled labor to his regular force of trained workers. The powers of one man, however forceful, intelligent, skilled and highly educated, are limited. He might be capable of directing and organizing an enormous force of trained employees under trained subordinates, but if the bulk of the material is raw, and unused to the special methods and routine of the work, it is beyond the limit of human power that one man should be able to control the working. Not only was the Surgeon-General unable to do this but each of his subordinate officers, chief surgeons of corps and divisions and in charge of large hospitals, had to cope with the same difficult duty of attempting to make bricks without straw, or to make skilled out of unskilled labor, while hampered by an insufficiency of even the raw material.

We regret to find one medical weekly reiterating this charge of the daily paragrapher and laboring heavily to sustain the position assumed, to-wit, that with an earnest and forceful man at the head of affairs the medical history of the war would have read differently. An astonishing amount of ignorance is displayed in the attempt to build up the argument: ignorance of the history of the Medical Department, of the history of the present Surgeon-General, and of the history of the war as stated in the report which gives rise to the criticism. Medical men, in their intercourse with the laity, have frequently occasion to note how the intricacies of a difficult technic subject can be overlooked and the whole be grasped to his own satisfaction by one who has but little knowledge of the subject. Bold assumptions are brought forward to clear away difficulties and make the path straight. Some thoughts of this kind arise in our mind as we read that the inadequate number of officers of the Medical Department ought to have been recognized by the Surgeon-General before the events of the war forced its recognition upon him. The assumption that nothing was done by Surgeon-General STERNBERG or his predecessors in office is not borne out by the history of the Department. Again, the editor brings into prominence the rush service, which was so creditable to the energy of the Surgeon-General, as demonstrating only a discreditable lack of intelligent preparation. Every newspaper knows that the hands of the Secretary of War, as of the Surgeon-General, were tied until Congress had taken action in the case. The Secretary of War can no more be blamed for failing to have 250,000 disciplined men on hand, prior to the declaration of war than can the Surgeon-General for failing to have a field medical equipment for such an army. Neither could act until Congress had given the authorization and provided the funds. The ignorance displayed becomes somewhat less childlike when the credit given to Lieut.-Col. J. V. D. MIDDLETON for his able management of medical affairs on the Pacific Coast and in fitting out the Philippine expeditions, is twisted into a reflection on Dr. STERNBERG'S administration. The insinuation is made that Dr. MIDDLETON was too far away to be hampered by central office bonds. This is strange and suggestive of an animus, for in the Surgeon-General's report are numerous instances of difficulties surmounted by subordinates as soon as they put themselves in communication with the central office in Washington. The prime reason why the medical supplies of the Philippine expeditions were always on hand when required was because Dr. MIDDLETON was independent of the Quartermaster's Department. His depot was within a block or two of the wharves, and instead of having to turn supplies over to the Quartermaster for transportation, he was able to have them delivered direct.

The existence of an animus suggested by the insinuated assumption just mentioned is strengthened when we find the editorial columns lowered to the following personality:

> When a man who had reached the Surgeon-Generalcy through political methods, whose life training had been that of a laboratory man, whose life had been practically devoted to research work in bacteriology—and good work it had been—is brought suddenly face to face with the problem of the nation in war, it is not surprising that he should have found it impossible to meet the conditions.

Those who know most of the history of the Army Medical Department know that politics had nothing to do with Dr. STERNBERG'S elevation to his present high position. His selection by Mr. CLEVELAND was due to the ability which he showed in discharging

duties in connection with National and international sanitation. Nor has his life training been that of a laboratory man, for his work for twenty years had been that of an army surgeon until his assignment on the Havana Commission imposed bacteriologic work upon him; and this new work, as the world knows, was done as efficiently as that earlier work which, though less generally known, sufficed to bring him into prominence as the best man for this important assignment.

Few of our contemporaries have discussed the remedial measures for the conditions described by the Surgeon-General. The medical weekly last cited proposes a vague reorganization with, "A commission of a dozen or more men, leaders in the profession, experts in special branches—in hygiene, sanitation, medicine, surgery, pathology and bacteriology—might be selected throughout the country and made an advisory body." We submit this proposition of a commission of able men who know nothing of military matters for what it is worth. For our own part, the remedial measures appear to be simple: Strengthen the Medical Department of the Army by making its numbers sufficient, and increase its efficiency by liberating it from its dependence on the Quartermaster's Department.

CORRESPONDENCE.

The Commission Evil.

NEW YORK CITY, Dec. 19, 1898.

To the Editor:—In response to my request for specific information about instances in which the specialist has paid commission to the general practitioner for referred cases, I have received several communications which indicate that the practice is not uncommon in a section of our country which is renowned for its "hustling" spirit. Personal inquiry among representative members of the profession in New York convinces me that my first impression was right, and that a division of the fee is never likely to become a practice here, excepting in instances where the patient agrees to pay a definite sum for the entire management of the case. This is rare, and would be an openly conducted transaction. I am in a position to see two sides of the matter. I have dropped from my practice everything excepting operative surgery, but during the year a good many other sorts of cases come in, which are referred to men who I believe are best authority. If any one of these men had been in the habit of offering a commission it certainly would have come to my knowledge, and further, he certainly would never have another one of my cases. On the other hand, I am constantly in contact with physicians who bring cases from all over the country, and not one of them has ever suggested that he would like a commission. As some of these physicians have come from the commission-infected area, they must have lost the symptoms on arrival in our atmosphere.

Payment of commissions would undermine the very pillars and foundation of responsible medical service, and would instantly bring us down into competition with charlatans. It is apparently a fact, however, that the commission evil has gained a foothold in a small part of the country, and perhaps very good land has been invaded by the Russian thistle. In order to keep reputable specialists who are subjected to the unfortunate influence of the commission evil, I propose that at the next meeting of the AMERICAN MEDICAL ASSOCIATION a resolution be adopted to the effect that any practitioner of medicine who gives or receives a commission for cases referred to or by him, shall be expelled from membership in the ASSOCIATION. I also propose that specially printed, conspicuous cards bearing a copy of this resolution be given to the secretary of the ASSOCIATION for distribution to applicants. Any one who needs to protect himself can display the card in a manner suitable to an occasion.

ROBERT T. MORRIS, M.D.

Carcinoma of Breast and Tubercular Abscess.

SAC CITY, IOWA, Dec. 20, 1898.

To the Editor:—The apparently increasing tendency of tubercular abscess and carcinoma of the mammary region leads the writer to briefly recite the history of a case on whom he operated for such affections:

Mrs. S., white, 30 years of age, called at my office for treatment for rheumatism, complaining of intense pain in the chest. She had constant dread of cancer of the breast. On the right breast, just below the nipple, a growth was noticed, about the size of a walnut. The other breast was normal. There was enlargement of ankle-joint, pain in the fingers, but the glands did not seem to be enlarged. There was discoloration of the right nipple, which was somewhat retracted. There was a history of tuberculosis on the father's side, and one aunt and sister had been operated on for cancer. Her urine was acid in reaction; sp. gr. 1025; excess of urates; pulse 80; temperature 100 degrees. The child had been taking the left breast, so I advised removing it at once and recommended thorough operative interference. She submitted, and on Nov. 28, 1898, I removed the growth from the breast. Abscess was also found in front of the tumor.

She rallied from the effects of the operation, and after three weeks was able to attend to her household duties and seems to be gradually improving.

I examined the specimen and found tubercle bacilli in the abscess around the growth. In the middle of the growth a specimen was taken and prepared for microscopic examination, and the cancer cells could be plainly seen. Is there any connection between tuberculosis and cancer in regard to the germ theory?

LEWIS E. MAKER, M.D.

PUBLIC HEALTH.

Plague Epidemic in Samarcand.—The prompt and effective measures of the Russian Government seem to have stamped out the plague in Russian Turkestan. In the first three weeks 219 died, but only 19 since, and no new cases have been reported of late. Medical observation stations were established all over the country, forming a close cordon around the infected village and along all the roads, stations and ports on the Caspian, with flying medical squadrons constantly on the alert, and reserves of physicians in all the principal Russian and Siberian cities. The *St. Petersburg Med. Woch.* states that the physicians on duty in Samarcand are to receive 3000 roubles for their three months' service.

The Spread of Tuberculosis.—Dr. Russell, city health officer of Glasgow, Scotland, in an official report, corroborates many long entertained views of investigators. He points out that, in respect to phthisis, which is the chief form of tuberculous disease from which aerial infection can arise, the measures of prophylaxis may almost be summed up in individual care to prevent the dissemination of dried sputum in dust, and in the general adoption of improved dwellings to avoid overcrowding and to insure ample sunlight and free movement of air; in fact, the risk of direct communication of the disease from the

sick to the healthy is really as nothing, compared with the overloading of the atmosphere with infected dust, which may be introduced with food as well as inhaled. Another notable point made in this report is that of the factor of individual vulnerability—the removal of the natural barriers to the entrance of bacilli by catarrh and ulceration, and the lowered vitality of blood and tissue, which enables the invading microbe to prevail in the struggle for existence.

Notes for Health.—A journal for invalids offers the following *mélange* to its readers: "Rest is a find medicine. Let your stomach rest, ye dyspeptics; let your brain rest, you wearied and worried men of business (Carlyle). . . A cup of very hot milk taken at bedtime will effectually prevent sleeplessness. . . An old physician once said: 'If people fully realized what it means to themselves to laugh, and then laughed as they should, 98 per cent. of the doctors would have to go out of business'. . . A plentiful diet of onions served in various ways, will protect children from many ills (*Boston Cooking School Magazine*). . . The perfume of flowers adds activity to all organs, especially those of digestion. For this reason, among others, the guests at banquets in ancient times were crowned with roses."

Dangerous Filters.—Persons who rely upon domestic filters to purify water for household use will be interested to learn that, on the authority of the State Board of Health of Maryland, such filters may steadily lose efficiency until they become first-rate culture-beds for bacteria. An example cited is that in the case of a man in Baltimore who sends the whole water-supply of his house through a large filter, and subsequently puts his drinking water through one of the small domestic filters common in the market. A test showed that on a day when the city taps were running 510 bacteria to the cubic centimeter, the large filter was delivering 9900 bacteria in the same quantity of water. When the large filter was repacked, only nine bacteria per centimeter got through it, but this same water, when passed through the small filter came out with seventy-one bacteria per centimeter. A further example cited is from the office of the Baltimore Heath Department, where a filter, supposed to be the best in the market, was in use. The effectiveness of that filter was so short-lived that the precaution was observed of boiling the water after it was filtered.—*Sanitary Record.*

New Orleans Board of Health and Yellow Fever.—This Board has published a circular addressed especially to the medical profession, anticipating a visitation by yellow fever the coming year. It signalizes the importance of educating the public in preventive measures. Some of the suggestions offered are the following: "It is a well-known fact that sunlight and oxygen destroy the germs of disease. In the case of yellow fever, cold is a potent factor in such destruction. Let us then give Nature a chance, during the present winter, to destroy with her own inexpensive agents any possible remaining vestige of infection left over from the summer. Let our houses be thrown open on every cold and clear day as much as is practicable, more especially the bedrooms. Let the clothes and bedding, curtains and all woolen, linen, and cotton materials be frequently aired and sunned. And most particularly let the clothes worn during the past summer be frequently subjected to the disinfecting influences of cold, fresh air and sunlight. Trunks, chests, armors, closets and bureau drawers should be opened and emptied of their contents during cold and clear weather; and fresh, cold air should be permitted to circulate in the remotest corners of the house among articles which can not be moved to the sunlight."—*N. O. Med. Surg. Jour.*, December.

Radical Measures for the Obliteration of Malarial Attacks.—Levkovicz, in the *Przeglod Ckarski*, offers a peculiar recommendation for the radical cinchonization of the entire population of a fever-infested district. His scheme is to so organize the procedure that during one and the same winter all cases of malarial fever should be brought to a conclusion, either by recovery or, in fatal cases, death. In this way the site of infection would be destroyed, and in the coming spring no new cases of malarial disease would be observed. But, as it is next to impossible to locate all malarial patients in a given region, he suggests and recommends submitting the whole population in said malarial regions, *nolens volens*, to a treatment of quinin. For adults, he would prescribe one gram, or 15 grains, per diem; children, according to their age, a corresponding quantity. This treatment should be employed as a prophylactic during a fortnight. In the old paternal governments of Europe such a suggestion, if approved by the home secretary, may become a sanitary police regulation and be enforced; but a similar suggestion would have little chance of successful hearing in these United States, where personal and individual liberty is so highly prized and so jealously guarded that even a universal vaccination of the virus of smallpox can not become, or at least has not become as yet, a matter of legislation, and only by the indirect means of exclusion from the public schools, or in the army and navy by direct regulation, has the administration or have the State sanitary authorities been able to make propaganda in this respect. But the mere idea to submit a whole population, or part of a population, whether they wish it or not, when yet healthy, to such a treatment, would seem to the majority of the people utterly absurd.—*New Orleans Med. and Surg. Jour.*, December.

Medical Inspection in Municipal Schools.—The municipal authorities of Berlin have decided to appoint medical officers to the municipal schools. This step will certainly meet with the general approval of the medical profession, which has for a long time past recommended medical supervision of schools. According to the instructions drawn up by the municipal school board, the duties of these medical officers will be as follows: 1. They will examine children as to their state of health before they enter a school; 2, in cases of bodily or mental abnormalities they may recommend the adoption of special instruction; 3, they will have to look after children who are absent from school without sufficient reasons; 4, they will have to advise the head master in cases of infectious diseases; 5, they must give notice to the school board when they have found the health of the children unfavorably affected by the unhygienic conditions of a school; 6, they will have to be present at a certain hour at the school once a fortnight so that the masters may obtain their advice in individual cases; 7, they will have to control the class rooms without reference to the hours of instruction; 8, all the medical officers of schools will have to meet regularly under the presidency of a member of the school board to discuss matters relative to the hygienic conditions of schools, etc. The duties of these medical officers will thus be rather complex, and a good deal of tact will be required on the part of these gentlemen to avoid friction with the teachers or with the family medical attendants of the children. A large proportion of school managers and teachers is opposed to the appointment of these medical officers because they are anxious that their own authority shall be supreme in everything that belongs to the schools, and they are of opinion that the medical men may eventually undermine discipline. These apprehensions, however, seem to be unfounded, for a similar system has given satisfactory results in other towns, for instance, in Wiesbaden.—London *Lancet*, November 19.

An English Life-Table.—We have before us a recent report by Dr. Tattersall, the medical officer of health of Oldham, in which he has published a life-table for that city that will prove to be an additional evidence that the only completely trustworthy means of measuring the incidence of mortality in a given locality is gradually coming into more general use. This

is the seventh in the series of life-tables dealing with the mortality of different English towns during the decennium 1882–90. These, in the order of their appearance, so far as we can remember, were for Manchester, Brighton, Glasgow, London, Portsmouth and Haydock. According to *Public Health* for October, this latest report is a valuable addition to the list, especially as it is the only one except the life-table for Brighton which is constructed by the graphic method first applied to this purpose by Dr. Newsholme. Dr. Tattersall reproduces the description of the graphic method from the Brighton life-table, and his four plates are excellent practical illustrations of the method, which will be useful to others who decide to adopt this comparatively simple and very elegant method of obtaining the necessary data for a life-table. The method is not only very elegant, but accurate. Some of the main results of the life-table may be briefly mentioned. The expectation of life at birth in Oldham for males is 36.9 years, as compared with 34.7 in Manchester, 35.2 in Glasgow, and 43.6 in Brighton; while at the age of 10 the expectations of life, taking the towns in the same order, are 43.8, 42.7, 44.3 and 40.1 years. It is somewhat surprising to find, as Dr. Tattersall points out, that the expectation of life in Oldham is so little better than in Glasgow, in view of the facts that the population of Oldham is very well paid, well fed and well housed. Something may be due to the bleak and exposed position of the town, on the verge of the Pennines and built on clay. This view is supported by the excessive mortality among the old people, though all ages show an excess. Thus, among 100,000 males born, the number surviving in Oldham at 10 years of age is 67,157, as compared with 81,182 in the healthy districts; while at the age of 60 years there are only 27,308 left, against 52,507 in the healthy districts. Thus, while under favorable conditions more than half the children born are remaining alive at 60 years of age, in Oldham little more than a quarter survive.

Soil Disturbance and Malarial Fever.—The *Indian Medical Record* contains an article by Dr. Moore of Darjeeling, in which he contends that disturbance of the soil has come to be inculpated as the cause of malarial fever more frequently than is just and proper. In the extensive construction of canals and railroads frequent outbreaks of malarial fever occur, but is it not more likely that the cause is the waterlogged condition of the soil due to the subsoil drainage being interfered with, and not the soil disturbance? He cites two instances of outbreaks of malarial fever occurring in France, said to be caused by the extensive disturbance of the soil in constructing railways. When agricultural colonies are founded in Algiers these outbreaks occur. M. Armand, in his very able work, "L' Algerie Medicale," explains this as being due to the hardships endured from defective food, less refreshing sleep, exposure, more continued, and more directly the vicissitudes of the climate, to which the rising colony is exposed during the endemio-epidemic season. Considering that the fact of being in camp all the summer has a deteriorating effect upon the health of the men, even when no work is done, how much more will the effect be felt when all the fatigue attending the establishment of a colony has to be encountered. The work of installation and construction does not involve as much disturbance of the soil as the subsequent tillage of the land, yet it is during the first summer that the state of the men's health is least satisfactory. The same statement applied to the troops in the early days of Hong-Kong, and, as in Algiers, the greatest amount of fever did not correspond with the greatest amount of soil disturbance, a point indispensable if the two things are to stand in the relation of cause and effect, while in all cases the men were living under conditions of great exposure and badly housed. There are, then, three distinct classes in which all the cases where soil disturbance has been accused of causing malarial fever may be placed: 1. Where the disturbance of the soil has interfered with subsoil drainage and caused a marsh or allied condition. 2. Where the outbreaks of fever have been coincident with works executed in the soil, but not due to the simple disturbance of the soil. 3. Where malarial fever has been caused by a specific poison, released and brought into evidence by the breaking up of the soil. Of course, falling into the first category there are plenty, but the author says it is a misnomer to speak of them as caused by soil disturbance. Of the second class there are also plenty; they belong to the type of a gentleman contracting the fever by digging in his garden. These cases are valueless. That malarial fever is caused in the manner specified in the third category there is not sufficient evidence to show.

Ambulance Work in London.—Dr. Heaton Howard, editor of *First Aid*, and the editor of *The Critic* (both of London) are making a struggle for a sensible and up-to-date ambulance service. The "little ward on wheels," as it is found in Paris, Vienna and several American cities. is unknown to London, except so far as the provision that has been made by the Metropolitan Asylum Board for the transportation of the infectious sick. The editor of *First Aid* advocates the establishment of several stations, having telephone connection, and supplied with either horse or electric motor wagons, having a surgeon and supplies suitable for the "first aid" of those who fall sick or become injured in the streets. "This kind of service," says *The Critic*, "is a matter that should come home to every citizen; for he is, if seized with sudden illness or the victim of accident, absolutely at the mercy of the first good-natured bungler who cares to seize upon him. Even if the guarantee of immediate skilled treatment in case of need should cost double the $750,000 estimated as necessary for the preliminary organization, and treble the $200,000 per annum suggested as the cost of maintenance and development, I do not think the average ratepayer would grudge the outlay. He already pays large sums for reading-rooms and museums which he does not always frequent, for parks which he seldom visits, for bands that do not irresistibly attract him, for baths which he does not often enter and many other pubiic purposes, all good in their way, but each intimately affecting a section only of the population. An efficient ambulance service is as necessary as a gas-supply or a fire brigade; and no one can possibly supply it for himself. Thus it becomes a public concern." Another writer advocates an arrangement by means of which horse ambulance wagons are placed at the fire stations and worked by the fire brigade. Local conditions, as noted, unfavorably affect the adoption of any of the first three methods, and the fire brigade, from the nature of its duties, is the most suitable body to undertake the work; the firemen are already trained in the management of horses and in driving rapidly through the streets; the public are also accustomed to clearing the streets to make way for the brigade. The duties of the firemen are more intermittent and less onerous than those of the police: these duties are much less during the day, when accidents are more numerous. Their work also trains the firemen to act with more deliberation in an emergency, a great desideratum in dealing with an accident when surrounded by a crowd of excited people. "Ambulance wagons worked by fire brigades have been in use for some time in the following places among others: Sheffield, Leeds, Leicester, Halifax and York, and have rendered most satisfactory service." The expense, which is always a serious consideration in advocating new departures, is, in this case, not very formidable, as once the initial expense was accounted for, the cost of maintenance would be a very slight addition to the cost of the fire brigade. With regard to the powers of the corporation for incurring expense in this connection, we may cite the following opinion from a report of the chief constable of Liverpool on the police ambulance system recently inaugurated in that city: "It may be well in conclusion to mention that the corporation have been advised that they were legally entitled to take the action they have done, in-

asmuch as the removal of the sick and injured persons from the streets is an important portion of the duty of the police, and that charges for instruction to render them efficient may properly be met the authorities."

Camps on the Pacific Coast.—Sanitary and insanitary conditions at Camps Alger, Thomas, Tampa, and other places in the East, have become familiar by newspaper description and by testimony before the Commission on the Conduct of the War Department, but information from the Pacific Coast has rarely appeared in Eastern journals. The following from the annual report of Gen. H. C. Merriam, by Lieut. Col. I. V. D. Middleton, deputy surgeon-general, is of interest in showing medical conditions on the west side of the Continent:

The first camp on the Presidio Reservation (Camp Merriam) was well located as to soil, drainage and water-supply, the latter coming from one of the city mains and conducted by pipes to every part of the camp. The ground gradually slopes toward the bay and the drainage is excellent. The remaining troops of the expedition are now camped on this location. The weather during the early part of May was moist and chilly, unusually so, and the troops, being unaccustomed to camp life, soon contracted ailments incident to exposure, such as nasal and bronchial catarrh, diarrhea, etc., of which there were many cases. Unfortunately, the Oregon Volunteers brought with them a few cases of measles; these were isolated by being sent to the Presidio and Fort Mason post hospitals, but the disease spread quite rapidly and many cases were treated in the regimental tent hospitals, in consequence of which pneumonia supervened in a few cases, which were sent to the Presidio post hospital. As regiments were arriving daily, it was found necessary to secure a larger camping-ground, and I learned that the military authorities had, without consultation with any officer of the Medical Department as to hygienic conditions, selected the race track and the sand dunes adjoining, designating the encampment as Camp Merritt. It was an objectionable location, on account of its exposure to the wind and fog, its bad drainage and the constant drifting of the sand upon which the tents were pitched. The sinks were improperly located, being on a line with the company kitchens, and I may here remark that the Medical Department had nothing to do with this arrangement. The sand in the vicinity of the kitchens and around the tents, through the carelessness of the men, soon became polluted and was blown into the kitchens and mess tents. Soldiers were permitted to come to the city by the hundred every day, and many of them would return to camp late at night, some under the influence of liquor, riding on the "dummy" of the cable-cars, without overcoats and with their blouses unbuttoned. A large number of men of each regiment reported at sick call every morning, and a large proportion of them were admitted to the sick report, the prevailing ailments being nasal and bronchial irritation due to exposure to cold, and errors of digestion, diarrhea, etc., due to imprudence in eating and drinking. The Tennessee regiment brought measles to this camp, and it spread very rapidly. During the months of June, July and August, the reports on file show 660 cases of measles. This disease complicated most of the serious cases of pneumonia, numbering 145, from which 43 died. Typhoid fever made its appearance during the latter part of May, and 121 cases, with 13 deaths, are recorded for the months of June, July and August. The water was carefully examined from time to time, but was found to contain no bacteria of a pathogenic nature, the disease being propagated in all probability by the contamination of the food by the drifting of polluted sand, and may have been carried into the kitchens and tents by the flies that swarmed in and around the sinks, kitchens and tents. Thirty-six cases of cerebrospinal meningitis also occurred, with sixteen deaths.

The division hospital was established at Camp Merritt June 2, by Lieut.-Col. Henry Lippincott. A sufficient number of hospital tents, placed end to end, in pairs, were pitched on the sandy plain to accommodate 100 patients, but soon its capacity was increased for 200, and finally 300 patients. Major W. O. Owen, U. S. V., was in charge of this hospital. As serious cases of pneumonia and typhoid fever could not be properly sheltered and afforded an equable temperature under canvas, they were sent to the Marine and French Hospitals, close by, where they received excellent attention under the direction of Dr. James Gassaway, United States Marine-Hospital Service, and of the superintendent and physicians of the last-named hospital, due acknowledgement of their courtesy and valuable assistance having been expressed in letters to them by Dr. Owen and myself. On several occasions I urged the abandonment of the camp, and on July 21 the division hospital was removed to the new barracks at Presidio, which were vacated by the troops of the garrison in order to accommodate the hospital. Here the patients were placed under far more favorable hygienic conditions than the canvas hospital can possibly afford, and the barracks were soon fitted up with all the comforts and conveniences that would facilitate the recovery of the sick. Wire netting and shades were put in the windows and all articles required for making it a first-class hospital were purchased and put in place. Thirty female nurses were employed, a sufficient number of physicians were contracted with, good cooks were obtained and, under the management of Major W. S. H. Matthews of the Fifty-first Iowa Vols., who has proved himself to be a good administrative officer, the hospital has been put in the very best order and condition obtainable under the circumstances, as the buildings were not constructed for hospital purposes and the ventilation is by no means perfect, the rooms are not of proper size or shape for wards, and the kitchens and mess-rooms are too far distant. The troops moved from Camp Merritt to the Presidio Reservation (Camp Merriam) in the following order: Fifty-first Iowa August 1, Twentieth Kansas August 5, First Tennessee August 18, Seventh California August 24, United States Infantry and Oregon Recruits August 27, and this was the final breaking up of Camp Merritt. This camp (Merriam) is now in excellent condition by being kept as clean as possible. The sinks are at suitable distances, emptied of their contents three times a week, and thoroughly disinfected twice daily; they are unobjectionable and not likely to cause sickness. Water is supplied from a city main and carried to every company, where there is a hydrant, the waste water being conducted off by means of drains. The cooking has been much improved, attention is given to bathing, and the men, better disciplined, are better able to take care of themselves. The sick list has been much diminished.

NECROLOGY.

T. H. HUZZA, M.D., Atlanta, Ga., died in New York December 9, as a result of an operation for appendicitis. Dr. Huzza was born in St. Louis, Sept. 12, 1863, and was graduated from the Jefferson Medical College in 1887, later doing special work in the Philadelphia Lying-in Charity Hospital, the Philadelphia Obstetrical Infirmary and the Pennsylvania School of Anatomy and Surgery, and was a gynecologist of some repute.

C. S. HOYT, M.D., Canandaigua, N. Y., died of pneumonia, December 13. Dr. Hoyt was born in Connecticut in 1822, received his degree of M.D. from the Geneva Medical College, and until the Civil War began practiced in Yates County, N. Y. He then enlisted in the 126th New York Volunteers, resuming his practice after the war. In 1867 he was elected to the Assembly, and in 1868 became Secretary of the New York State Board of Charities, since occupying that position.

JAMES LAWRENCE TYSON, M.D., University of Pennsylvania, 1838, died December 10, at his residence, Penllyn, Pa., in his 86th year. He was a descendant of the Celebrated Dr. Edward Tyson of London, whose descendant, Rinear Tyson, emigrated to Pennsylvania in 1683. Dr. Tyson was born in Philadelphia, Nov. 19, 1813. In 1854 he was elected professor of medicine and therapeutics in the Philadelphia College of Medicine. For several years he was physician to the Wills Eye Hospital. He was one of the founders of the Howard Hospital, and for many years one of its physicians. While in California he was surgeon-in chief of a hospital in the northern gold region. He was a member of the Philadelphia College of Physicians before he moved to Montgomery County.

JOEL ALLEN, M.D., Burlington, Vt., a graduate of the Medical Department of the University of Vermont, Class of 1875, died at his home, December 6, aged 48 years. Dr. Allen was a member of the Vermont State Medical Society and the Burlington Clinical Society, and attending physician to the Home for Friendless Women and Home for Destitute Children.

A. S. BALDWIN, M.D., Jacksonville, Fla., died December 8, at the age of 88 years. He was born in New York; located in Jacksonville in 1838, and, at the age of 27 years, served as one of the defenders of the State in the Seminole War. His

early education was secured at Hobart College, Geneva, N. Y., from which he later received the degree of M.D., in 1838. In 1852 he was chosen to represent his county in the Florida State Legislature, and during the first session secured a charter for the Florida Central Railroad, later becoming president of the company organized. In 1858 he became State Senator and, as a member of that body, when the Civil War broke out strenuously opposed secession. He was for twenty years meteorologic correspondent for the Smithsonian Institute, the reports being the first scientific exhibition of Florida clinical literature. He was also corresponding member of the Boston Natural History Society and a member of the American Scientific Association, and is credited with having organized the first medical society in Florida, the Duval County Medical Society, and in 1873 the Florida State Medical Society, of which he was the first president.

DEATHS ABROAD.

VON KLAR of Prague, prominent in official circles and in his specialty, the care of the blind, is dead. He recently added a kindergarten to the Klar Institute for the Training of the Blind, founded by his father, to which he has devoted his best energies all his life.

LAWRENCE B. HOFF, M.D., died in his 40th year, October 9, of cardiac trouble, in Coast Hospital, Little Bay Ultimo, a suburb of Sydney, New South Wales. He was a son of the late Louise Bainbridge and the late Rear Admiral H. K. Hoff, U. S. N. Dr. Hoff was born and brought up in Germantown, Pa. He was his father's chief clerk when the Rear Admiral went to Havana in a United States warship several years ago. Dr. Hoff was a graduate of the University of Pennsylvania and practiced in Germantown. In New York City he was at one time librarian of the Twelfth Regiment New York State Militia. He went to Australia about five years ago. His death only recently became known to his friends through a returned unanswered letter.

SOCIETY NEWS.

First All-Russian Congress of Hydrology and Balneology.—This Congress opened in December, at St. Petersburg, under the most favorable auspices. The government appropriated 18,000 roubles, and members to the number of five hundred were given free first-class passage to and from the Congress at any time between November 20 and January 19.

Society of Washington Ophthalmologists and Otologists.—The December meeting of this society was recently held at the residence of Dr. Burnett, Dr. J. H. Bryan, vice-president, in the chair. Dr. Burnett read a paper, reporting a case of double nasal hemianopsia. The paper was discussed by Drs. Belt and Muncaster. Dr. Burnett also reported a case of severe injury of the ear, in which he performed a plastic operation, restoring the meatus auditorium externus, which was discussed by Drs. Bryan, Suter and Richardson. Dr. Charles W. Richardson read a paper on "Thrombsosis of the Lateral Sinus," and reported a case upon which he had operated, ligating the jugular. The paper was discussed by Drs. Bryan, Burnett and J. J. Richardson.

MISCELLANY.

Examining Michigan Recruits.—"Don't this old injury hurt you when you attempt to run?" asked the examing surgeon of a candidate for enlistment. "Course it does. If yer looking for soldiers what's goin' to run, just count me out."—*Detroit Free Press.*

Sanatorium and Sanitarium.—Some uncertainty apparently exists as to the use and significance of these two words. A "sanatorium" is a place to which the sick go to get well. The word is derived from the Latin, *sanare*, to heal. "Sanitarium" is derived from the Latin, *sanitas*, health, and is considered by lexicographers an improper form for "sanatorium." There is no sound reason in having two words so nearly alike to convey the same idea, particularly when one exists without the sanction of authority. There is, therefore, good ground for preferring the word "sanatorium" to its counterfeit "sanitarium."

Neurofibroma.—Menke reports a case of a large plexiform neurofibroma above the iliac crest, with others smaller on the neck and trunk. The patient was a vigorous young man, and nothing to explain the etiology was discovered. The head was free.—*Vienna Klin. Rund.*, November 27.

Don't Forget General Wood.—The *Sample Bag* asks, "Why did we beat Spain?" Because we are as strong as Sampson, we are as Schley as a fox, we are Miles long, we possess Merritt, we are Hobson's choice, what more Dewey want? . . . Only this—after the war is about over, the public in General Wood commit the care of the Cuban cities to a medical officer.

Sickness at Manila.—A correspondent of the New York *Herald* writes that sickness is on the increase among our troops at Manila, and adds that there is a rigid censorship as to the health conditions of the forces. The authorities do not censor private letters, and every man in every regiment may write in a much more alarmist fashion than would the newspaper correspondents, in any event. The soldiers must all see the great increase in the sick rate. The California regiment, which was the healthiest on the ground up to the time the city fell, has more than 150 men ill now, and has been compelled to secure a hospital of its own. There was no more room in the division hospital, which answered all the needs of the Spanish garrison before we came.

A Regrettable Omission.—The "printer's devil," or some other imp, is responsible for the oversight which led to the omission from the list of the newly elected officers of the American Public Health Association, in our report of the recent meeting of that body at Ottawa, Canada (vide JOURNAL, p. 988), of the name of the first vice-president for the year 1898-99—Dr. Henry Mitchell of Asbury Park, N. J., secretary of the State Board of Health of New Jersey, who was nominated for the office by the Advisory Council, without a rival candidate. The Association has honored itself by placing in its second office a sanitarian of such recognized merit and a health officer of such indomitable energy.

Sporozoa of Carcinoma.—Jurgens has succeeded in isolating from the mucus surrounding the neoplasm a micro-organism evidently belonging to the Gregarinidæ in a number of cases of cancer of the stomach and one cancer of the bronchi, in which the air-passages were occluded, resulting in a collection of several generations of the sporozoa. It is much larger than the usual Gregarina, which he explains by the discovery of the fact that the micro organism develops by the conjugation peculiar to this species, the two bodies blending to form a single large one which invades the cell until the shell of the cell, enclosing the micro organism is all that is left of it. In this condition it resembles Miescher's tubes and Rainey's bodies, and he queries whether they may not be developed Gregarinidæ. Further particulars are given in the *Klin. Therap. Woch.* of November.

Picrotoxin.—The conclusions of a recent study of the cocculus indicus and picrotoxin sent in to the Paris Académie de Médecine are that it is a dangerous poison, with an almost exclusively bulbar action, extremely slow of absorption and impregnation. It is the type of a bulbar convulsive, and has no direct effect upon the muscular fiber. The cardiac and respiratory manifestations depend upon the effect produced on medulla, although to this must be added a certain influence of the toxic substance on the nerves of the vegetative life. The central influence is also responsible for the salivary and intestinal hypersecretion observed in the dog, and the sudoral, salivary and lachrymal hypersecretion in the horse. The writers are extremly pessimistic in regard to its application in therapeutics.—*Bulletin*, November 15.

Ligation of Mesenteric Artery.—One of the rarest lesions in a "buffer accident" is a rupture of a branch of one of the mesenteric arteries. Such an accident occurred recently to a railway porter and he was admitted in a state of collapse into the London Royal Free Hospital. As the collapse seemed to diminish, operation was temporarily postponed, but later, as it was again increasing, it was decided to operate. Mr. Roughton opened the abdomen and found that one of the vasa intestini tenuis had been torn through about one inch from its origin. The distal end was bleeding freely and both ends were tied. The peritoneal cavity contained much blood, and the collapse was so extreme that saline transfusion was resorted to during the operation. The man has so far gone on well, and as ten days have now elapsed since the operation he will in all probability recover.—*Lancet*, October 22.

Meager Diet of Porto Rican Peasantry.—Dr. L. Amadeo, a physician resident in Porto Rico has made a careful report on the mental and physical condition of his fellow-islander. He was well qualified for undertaking the investigation, of which the summarized results were published in the New York journals, for he had both studied and practiced medicine in this country, and, being a Porto Rican by blood and birth, was not likely to see in his people defects that do not exist. What he did see was the effect of insufficient nutrition, extending through the whole working class, i. e., through the whole class, which, thanks to Spanish tariffs, was forced to live on roots and fruits. He implores his new rulers to avoid the murderous policy of their predecessors, and to put within the reach of the toiling thousands in Porto Rico the very food which so horrifies and disgusts the vegetarian monomaniacs. Meat, he says, is the remedy for wasted muscles and inactive brains. This is science; it is also common sense, but it will raise a howl of anger from the unfortunate people to whom the prohibition of good things seems to be the alternative to its abuse. —*New York Times.*

Absorption of Medicines in the Stomach.—Professor Moritz has been studying this subject with sodium salicylate, potassium iodid and pulverized charcoal administered before, during and after meals, investigating the results with the stomach-pump. They confirm the results already empirically established, although he was surprised at the rapidity with which water and any much diluted medicine passes out of the fasting stomach. A medicine given with milk, soup, wine, oil, etc., leaves the stomach much less rapidly; still slower if taken with the meals and so slowly after a meal that in case of hepatic colic, etc., occurring after a meal, morphin should be administered subcutaneously or per rectum. Fluids like soup, milk, oil, etc , cause a secretion of gastric juice and the motor function of the stomach is proportionately less as the secreting function is active. He confirms the benefits of a mucilaginous vehicle in protecting not only the stomach but the intestines from irritation, recommending that digitalis be thus administered, and mentions as progress Sahli's "glutoid capsules" made of gelatin hardened formaldehyde; practically insoluble in the gastric juice but readily dissolved by the pancreatic secretions.—*Munich Méd. Woch.*, November 29.

Suture of Auricle of the Heart.—E. Giordano reports the first case of suture of the left auricle, for a wound in which the knife had passed through the entire thickness of the wall. The condition of the patient rendered immediate intervention imperative and it was impossible to take all the desirable antiseptic precautions. The condition was satisfactory for a few days, but bloody pus then appeared in the drain and death ensued in two weeks. The query whether to lose time preparing the patient for the operation, or to take the chances of infection, is a vital one in such cases. The necropsy showed that the patient had recovered from the wound in his heart, that his purulent pleurisy was also on the way to recovery, and that he succumbed to a later complication, abscesses in his right lung. The wounds in the auricle and in the pericardium were perfectly closed with a linear cicatrix. Farina of Rome sutured the right ventricle for a wound 5 to 6 millimeters in length, in 1896. The patient succumbed to broncho-pneumonia, but the heart wound was found cicatrized. Rehn's case was cured, also one reported by Parozzani, and another by Parlavecchio. Others that did not result in recovery are reported by Parozzani, Cappelen, Nicolai, Ninni, and Longo.—*Presse Méd.*; *Riforma méd.*, September 9 and 10.

Ankylostomum Duodenale.—About two years ago Drs. Ginn and Jacoby published (*Berlin Klin. Woch.*) certain observations which they had made on the presence of the *ankylostomum duodenale* and other parasites in the intestines of natives of India, and they arrived at two main conclusions: 1, when the ankylostomum has gained a hold in a native tribe in India, it spreads with great rapidity among the members of the tribe; and 2, it appears very probable that a person may have the ankylostoma in his intestine without being the subject of ankylostomiasis. In the summer of this year, 1898, the same observers had opportunities of examining the stools of several natives. Of the feces of eight natives of Ceylon, in eight the ova of ankylostomum duodenale were found, in seven those of trichocephalus dispar, and in six those of the ascaris. In the stools of six natives of Madras in six were observed the ova of ankylostomum duodenale, in six those of trichocephalus dispar, and in five those of ascaris, and in two of the Madras natives the larvæ of anguillula intestinalis appeared. The first of the above proportions was therefore corroborated by the new investigations. As supporting the second of their conclusions, Drs. Ginn and Jacoby found that a large number of Asiatics and Africans in whose stools the ova of the ankylostomum were found exhibited no signs of anemia. Among certain tribes there seemed to exist a certain immunity from ankylostomiasis, but this immunity was limited in its range and by no means absolute in degree.—London *Lancet*, November 19.

Not Bound to Undergo Serious Operation.—Assuming that the injury complained of in the case of Kehoe against the Allentown & Lehigh Valley Traction Company was the result of a certain accident, the company, which was sued for damages, urged, in defense, that the injury was not of a permanent character, but one that could quickly and permanently be cured by proper medical treatment, namely, by a simple surgical operation, attended with no pain (if anesthetics were used or the patient etherized), and free from serious danger. However, in view of the evidence relating to the subject, the supreme court of Pennsylvania declares, Oct. 17, 1898, that there can not be any doubt of the correctness of the following instructions given the jury: 1. That, if they believed that the surgical operation, necessary to relieve or cure the plaintiff, was a serious or critic operation, necessarily attended with some risk of failure, then the plaintiff was not bound in law to undergo a serious and critic surgical operation, which would necessarily be attended with some risk of failure; and 2, that if they believed that such operation was dangerous and critic, and attended with risk of failure, she was privileged to exercise the liberty of choice, under such circumstances, as to whether suffering and feebleness, resulting from the injury, would be endured, or whether the surgeon's knife should be used.

Communications to Veterinarians Not Privileged.—A veterinary surgeon was asked what the owner of a certain horse had said as to his visiting the horse, and what the report was that had been received from the keeper as to the condition of the horse. To these questions the owner objected, as calling for privileged communications, and the objections were sustained by the trial court, as being in conflict with section 3643 of the Iowa Code

of 1873, prohibiting a disclosure of professional communications. The owner's counsel said in argument, "We have no case exactly in point to cite." And the supreme court of Iowa says, Hendershott vs. Western Union Telegraph Company, Oct. 22, 1898, that it thinks that none can be found to sustain the ruling. It holds that the reasons upon which the section referred to is based have no application whatever to a case of this character. Communications, it maintains, are privileged in certain cases for the reason that full and free communication in those cases is necessary and to be encouraged, but that these reasons do not apply to veterinary surgeons called to treat animals.

Donations for Medical Education.—The last report of the Board of Regents of New York summarizes the evidences of improvement in medical teaching in that State. There has been a remarkable increase in the material resources and property among the medical colleges and an increase, since 1898, of more than 100 per cent. in total property, and of nearly 100 per cent. in annual receipts. Since that time this great increase has grown still larger, especially in Greater New York. The University and Bellevue Hospital Medical College has the fine new building erected in 1897 by the faculty of the Bellevue Hospital Medical College. The College of Physicians and Surgeons, with the Vanderbilt Clinic, doubled in size by the additional gift, in 1895, of $350,000, and the Sloan Maternity Hospital, greatly enlarged in 1897, now make the most complete plant in existence for scientific medical education. The Polhemus Memorial Clinic has been completed and thoroughly equipped since the last report, providing accommodations for the outpatient and medical school departments of the Long Island College Hospital. The intention of Mrs. Polhemus, that everything pertaining to the construction and equipment of this building should be of the most approved type, has certainly been carried out. The New York Medical College and Hospital for Women has just opened its handsome new building in West One Hundred and First Street. Last, but not least, $1,500,000, the greatest amount ever devoted by one person at one time to purposes of medical instruction, has just been given to build, equip and endow the new medical department of Cornell University in New York City.

Unlawful Practice.—By the Nebraska statute any person not possessing the prescribed qualifications for the practice of medicine, surgery or obstetrics, or any person who has not complied with the provisions of the law relating thereto, who shall engage in the practice of medicine, surgery or obstetrics, or any of the branches thereof, shall be deemed guilty of a misdemeanor, etc. Any person shall be regarded as practicing medicine within the meaning of this statute who shall operate or profess to heal or prescribe for or otherwise treat any physical or mental ailment of another. But nothing therein is to be construed to prohibit gratuitous services in cases of emergency, or to apply to commissioned surgeons in the United States army and navy, or to nurses in their legitimate occupations, or to the administration of ordinary household remedies. Now, under this statute, the supreme court of Nebraska holds, in State vs. Paul, Oct. 20, 1898, any person within the exceptions prescribed, and not having complied with the requirements as to certificate and registration, who shall, for a remuneration, operate on, profess to heal, or prescribe for, or otherwise treat any physical or mental ailment of another, is liable to the penalties prescribed, although the operations were performed, and the medicines were administered and given, under the direction and charge of a licensed physician and surgeon. To make one liable to the penalties of the statute, the court further insists, it is not essential that at or before the treatment of the sick, he represented, claimed, or advertised himself to be a regular, legal or competent practitioner of medicine.

Discovery of a Roman Hospital.—Advices from Geneva to Paris are that the remains of a Roman hospital have just been discovered in Baden, in the Canton of Argovie, Switzerland. The ruins, both from an architectural and an antiquarian point of view, are said to be valuable and interesting, since they are the first traces of anything proving the existence of hospital arrangements among the Romans. Neither the remains of Pompeii nor Tungad have led antiquarians to suppose that the Romans ever devoted a building to the exclusive use of invalids. No Latin or Greek author, the Geneva press asserts, has left a description of such an establishment. Hippocrates, alone, in a passage which is very short and rather obscure, alludes to diseases which were treated in the Temple of Esculapius, but it is thought to be impossible to decide therefrom whether there were any places near the sanctuary specially set apart for treating diseases. The arrangement of the ruined structures at Baden leave no doubt as to the use for which they were built. The edifice is composed of fourteen small rooms, in which a large number of medical and surgical instruments, tweezers, tubes, knives for spreading plasters, spoons, measure glasses, cauterizers, ointment boxes, and the like were found. Antiquarians of Geneva who have visited the ruins assert that everything goes to show that this was the site of the hospital of the Fourth and Fifth Legions, which had their winter quarters in Baden.

Paternal Hereditary Syphilis.—An interesting lecture by Professor Fournier, on the subject of preventive treatment of paternal hereditary syphilis is reported in the *Semaine Méd.* of November 30, in which he states that when a fetus is threatened with paternal syphilis, the mother being healthy, it can be protected by specific treatment of the mother during her pregnancy, if commenced very early. After the fifth month it is useless. The method has been successful in such a large number of cases that the physician should consider it his duty to inaugurate it under such circumstanees, even if he has to deceive the mother to conceal the father's condition. The mother-in-law is usually the worst feature of the case, he adds. Mercury should be the base of the treatment, but as the dosing is not for the mother, but for the fetus, minute doses are sufficient, if continued throughout the entire pregnancy. Sublimate sometimes affects the stomach in pills, and disgusts by its odor in a solution. He prefers pills of mercurous iodid, under the circumstances, with a daily dose of five centigrams, or even of twenty-five milligrams, suspending treatment for ten days after twenty days of treatment to rest the stomach, continuing it thus to the end of the pregnancy. Pinard prefers mercuric iodid as follows: Mercuric iodid .1 gm., potassium iodid 10 gm., aq. dest., or simple syrup, 250 gm., peppermint water 50 gm. Daily dose, two tablespoons of the solution or two dessertspoons of the syrup, in the middle of the meal. Barthélemy persuades the mother that an injection of serum once a month would benefit her, and thus injects grey oil, every thirty days. No unfavorable effects of this treatment of a healthy woman have been observed by any one. Pinard continues the treatment without interruptions. Others alternate the mercury with potassium iodid. Each method has been successful, and it is usually necessary to conform to individual circumstances in each case.

Acetylene Worry.—The *Independent* has a readable paper on the above title, minifying the causes for anxiety about the coming new illuminant, acetylene gas. The writer points out the great worriment that was caused about sixty six years ago over the proposed introduction of olefiant gas. The timorous people of Philadelphia went so far as to publicly object to the disuse of oil in public lighting. They could not see what should prevent the flame at the jet from backing through the pipes to the house meter or even to the mains and the works' gasometer itself. Direful predictions were also made when

Stephenson proposed the locomotive. The canal and stage proprietors did not wish to be disturbed, and timidity also opposed progress. Stephenson had to talk of a very low speed, not greatly beyond that of the horse, or his bill would have failed in Parliament; but when an opponent in committee declared that even the cows would be driven mad by the glare of the red-hot engine chimney, he could not refrain from asking how they would know the chimney was not red with paint instead of heat. Only a few years ago the bicycle was opposed because horses (as was asserted) could not bear the sight of it, and if the "toy" was to be allowed in the streets every other vehicle must go. And now there is some trouble over acetylene gas and the carbid from which it is obtained. There are potencies of danger in both, and in what is there not? There is a choice in generators; there are ways of treating carbid; that substance is mischievous only as water touches it, and its affinity for moisture is so intense that it must be excluded from air or it slowly spoils; keep it in moderate quantities and securely sealed, and it brings no fire risk. The tallow dip displaced the pine knot, whale-oil displaced the tallow dip; "fluid" succeeded whale-oil; kerosene, gas and electricity have followed, in each step and each illuminant its own hazards, and each disturbing the timid. It is therefore inconsistent, and it will be futile, to resist acetylene. Underwriting must accept it in its turn and deal with it rationally.

Revocation of Certificates.—The Iowa statute designed to regulate the practice of medicine and surgery in that State provides for the issuing by the State Board of Medical Examiners of certificates, and authorizes the Board to revoke a certificate whose holder shall have been convicted of a felony committed in the practice of his profession or in connection therewith, or "for palpable evidence of incompetency." The statute does not prescribe the practice to be followed in cases instituted for the revocation of certificates. It may, when practicable, says the supreme court of Iowa, commenting on this in Traer vs. State Board of Medical Examiners, Oct. 24, 1898, follow somewhat the methods of the courts, yet, from the nature of the Board and the character of the duties it is required to perform, a more flexible practice than that allowable in the court must, of necessity, be followed in many cases. The person whose right it is to hold a certificate which has been issued to him should be given a fair opportunity to meet the charges and evidence against him. What would be "palpable evidence of incompetency," within the meaning of the statute, the supreme court further says, is not easy to define, although it must be sufficient to make plain and obvious the incompetency of the accused to practice as a physician and surgeon. In the absence of objection, it is of the opinion that evidence which tends to prove or disprove the competency of the accused may be considered, as affidavits, etc., even though it is not the best evidence which could be produced for that purpose. The provision of the statute which gives to the president or any member of the Board authority to administer oaths and take testimony in matters relating to their duties as examiners, if it applies to the revocation of certificates, the court also holds, is not exclusive, and does not prevent the consideration by the Board of Evidence not so taken. Finally, the court declares within the jurisdiction of the board to determine the competent and sufficiency of the evidence submitted to it, and if it errs in admitting evidence or in giving to it undue weight, the error can not be corrected by certiorari proceedings.

Gleanings.—Large piece of omentum torn out by insane woman after opening her own abdomen exhibited recently before the Paris Soc. de Chirurgie. . . . Tumefaction of the submaxillary glands in one patient and a dermatitis in another from treatment with potassium iodid, reported by Danlos. . . . Case of severe diarrhea with incarcerated inguinal hernia, persisting until after the hernia was operated on. . . . Case of chronic primary osteomyelitis of the spine reported by Isra in woman of 27 years (*Deutsche Med. Woch.*, November 2 . . . Fatal osteomyelitis caused by scraps of cloth from gu shot wound twenty-seven years previously. The scraps h evidently been encapsulated and the encapsulation broken b a violent muscular exertion (*Deutsche Mil. Ztft.*, July) . . Ducrey's bacillus has been successfully isolated from so chancres, resown and inoculated in man by Langlet, who i vented a special medium for the purpose (*Presse Méd.*, Nove ber 12). . . . Neugenbauer observed a fourteen weeks' extr uterine embryo extracted by vaginal celiotomy and embryo omy in which, when the breast was opened, the heart was fou still rhythmically pulsating, and this automatic action co tinued for three hours (*Cbl. f. Gyn.*, No. 47). . . . Case eczema of the lips caused by salol in a tooth-wash (*Deutsc Med. Woch.*, December 1). . . . Taillens reports fifty-fo relapses in 234 herniotomies. He finds that there is least da ger of a relapse after umbilic and greatest after femoral he nias. Also that suture of the pillars protects better than t Bassini, against relapses. The cases have been followed sin 1890–94. . . . Partial resection of the cecum for localiz tuberculous ulcerations. Recovery. Resection of the sm intestine and surrounding omentum for chronic tuberculo adherences simulating a tumor. Recovery (*Cbl. f. Chi* December 3).

American Hypnotic Grasses.—The *New York Medical Journ* November 12, refers to certain grasses of the genus *Stipa* th appear to have medicinal or poisonous properties. Some the American species, *Stipa viridula*, found in some parts the Southern States, especially in New Mexico and Texas, ha recently been made the subject of investigation by Dr. Lyckhart Gillespie of Edinburgh. He was led to make t examination by information as to the unpleasant and alarmi effects of the grass, locally termed "sleepy grass," on hors The cowboys, he says, driving herds of cattle from one place another over elevated prairie regions, are often astonished waking in the morning, to find their horses, and perhaps th cattle also, unfit to proceed on the journey. "The travele horse," says Dr. Gillespie, "is a pitiable object. He stan with head and tail drooping, his form quivering, streams sweat pouring down his sides, respiratory movements hurri and panting, his heart's action increased in force, judging the evidence of palpation, while his excretion of urine is ma edly increased, with symptoms of irritations and strangu accompanying its expulsion." He is incapable of moveme and seems about to die, but so far as Dr. Gillespie's informa could say, actual death, either in horses or in cattle, is n known to have been caused by the grass. It seems to have action on sheep. The acute symptoms pass off in about t days, but the general health of the animal is affected for so time. Dr. Gillespie has found it impracticable thus far to ma a thoroughly satisfactory preparation from the grass for ph macologic experiments. A weak mixture of hydrochloric acetic acid and water was found to be the most effective me struum for extracting the substance presumed to contain t active principle, but these acid extracts had to be neutrali partially before they could be used, and this partial neutr ization precipitated much of the solid matter present. Al holic extracts also were employed. The author gives the deta of four experiments, three on frogs and one on a rabbit. Th confirmed the accounts of the narcotic and paralyzing acti of the grass, and the animals seemed to be affected with hal cinations and great fright. The author also refers to the sta ment of Haeckel that another American species, *Stipa i brians*, as well as the *Slipa sibirica* of the Russian step has a similar action.

Toxicologic Relations of the Ptomains.—The discovery, in 18 by Selmi, of the first of the postmortem alkaloids revoluti

ed the medico-legal operations of the chemist. It made the rocess of detecting vegetable alkaloids a matter of so great elicacy that, for a time, it was thought it would thenceforth e impossible to prove poisoning from vegetable alkaloids by eans of toxicologic investigations. Such an assertion was an xaggeration, the toxicologist who would feel himself at a loss the presence of ptomains would be altogether incompetent. n fact, no special or very characteristic chemic reaction, as et, enables us to distinguish the ptomains from vegetable kaloids; nor is this in any way surprising, as it would be ite illogic to wish to establish between the two orders of kaloids a difference which nothing can possibly justify, and hich reminds us of the distinctions that were insisted on rmerly as existing between the two kingdoms, animal and egetable. The processes of decomposition, splitting up or nthesis, which determine the formation of ptomains are ery certainly of the same order as those by virtue of which e vegetable cells fabricate quinin or strychnia. A certain umber of the alkaloids most frequently met with in the rganism have been equally often met with in vegetables—denin and exanthin in tea leaves, for instance—and M. ouchet states that there is little doubt on his part that t no distant date a continued alkaloid series will be found assing from the simplest ptomains as hydropyredic bases on the most complex vegetable alkaloids. It is only by chemic eaction and physiologic experimentation taken together that e are enabled to succeed in identifying the alkaloids obtained oxicologically, with any particular vegetable alkaloids. No ndication, however subtle, should be neglected in the double eries of investigations. It was in consequence of attention to his, that, in the celebrated process of General Gibboni, Selmi ucceeded in proving the innocence of the incriminated—by stablishing the fact that the alkaloid obtained from viscera ubjected to medico-legal examination, and which experts lleged was Delphinium, on a chemic reaction alone, in reality onsisted of a ptomain which arrested the heart's action at *ystole* instead of at *diastole* as in the characteristic action of he Delphinium alkaloid. The putrefactive coniain of Lieberann is distinguishable from the true coniain in that it is either volatile nor toxic. It would be easy to multiply xamples of that kind. Physiologic experimentation made lso comparatively with the isolated products of viscera, and he alkaloids with which the chemic reactions obtained anterorly seem to justify us, in fact, in disposing of any doubts. We ought consequently to obtain, under the same experimental onditions, results absolutely identic. The methods of physiologic experimentation known up to the present time are sufficiently delicate and exact to enable us to prove or disprove to certainty deductions based on chemic analyses alone. We must of necessity hold that there never can be complete evidence of identity supplied by comparative chemic and physiogic examination of two alkaloids, unless they be constituted of one and the same substance. This is a fact of experiment which does not admit of dispute.—*The Scalpel*, October.

The Brunette Peoples of Europe.—Sergi has given, in *Science Progress*, the results of his study of the brunette races and their migrations to the Mediterranean belt. To his mind the origin of those races is a question of racial rather than linguistic migration. While admitting that Aryan speech among modern and historic peoples throws the burden of proof on anyone who essays to find an origin other than Aryan for those peoples, Sergi makes bold to assume that the race or races with which Aryan speech originated may have been at all times few in numbers, and may further have been long since extinct; and consequently that all the Aryan-speaking races of historic times may have, at one time or another, learned Aryan speech, without acquiring more than a slight tincture of Aryan blood. The ground is thus left open for an examination of the question from a point of view primarily anthropologic, and based in the first place on physical, viz., morphologic, criteria of natural kinship between the races to be examined. A survey of the whole Mediterranean shore line has led him to the conclusion that its earliest recognizable inhabitants and their descendants, who form the great mass of the present population, belong to a single closely connected group of races; that their earlier home is to be looked for in the former fertile interior of northern Africa, and not improbably in or near the upper valley of the Nile; and that the peninsulas of South Europe and Asia Minor have been peopled thence along several distinct routes which mainly follow the course of the pliocene land-bridges, or former land connections. The "Mediterranean race," thus described, has the following characteristics common to all its branches: The outer complexion is typically brown; brown skin, brown eyes, brown hair, abundant and always more or less wavy. It is thus equally distinct from the blonde white races which bound it on the north, and from the negro races of Africa. Modifications of the brown tint are found in all branches of the race, but are conceived to be due to intermixture either with the earlier aborigines or with subsequent intruders. The body is well-proportioned, the face oval, the nose rather narrow, the orbits wide and set horizontally, the forehead high and nearly vertic, the cheek-bones neither wide nor very high; the face not flattened, but if anything a little prominent in front; the neck long and well-rounded, and the features mobile and expressive. It is, in fact, the familiar brunette type which every one recognizes who has traveled to any extent along the Mediterranean. Determined by certain types of skull, the "Mediterranean race," appears, wherever it is found, as a collocation, more or less uniformly complete, of a number of such related types; and from this it is inferred that the race was already composite in the farthest area of origin to which it can be traced. This center is placed by Sergi in the upper valley of the Nile, on the ground that here, among the Abyssinians, Gallas and Somalis, the characteristic collocations of types are most completely exhibited; the dusky complexion of a large proportion of these races at the present day being discounted, partly by their long-continued exposure to a more tropic climate than any other branch of the race, and partly by the certainty of continuous infusion of a negroid strain from the south.—*Popular Science News*, November.

Columbus and His Medical Advisers.—It is said of the first of the voyages of Columbus, that out of his slender company, which all told numbered but 120 souls, there were two physicians, Master Alonzo, on board the caraval *Santa Maria*, and Master Juan, on board the *Pinta*. When Columbus returned to Spain, the last named officer remained behind, at Fort Navidad, and made one of the thirty eight victims who were massacred by the natives of San Domingo. The principal medical officer of the second expedition, which consisted of 1500 men, and sailed from Cadiz in the month of September, 1493, was Dr. Diego Alvarez Chanca of Seville, physician in ordinary to the King and Queen of Spain. In a report addressed to Ferdinand, Columbus referred to this officer in the following flattering terms: "I make a point of directing the attention of your Highness to the never-ending work wherewith Dr. Chanca is overwhelmed, in consequence of the heavy sick-roll, together with the dearth of provisions; but in spite of all difficulties he evinces the utmost zeal in everything that concerns his art, Your Highness having left me free to fix the amount of his remuneration (although it is perfectly certain that neither I nor anyone else in my position could give him a sum even approaching what he would gain on land), I have opened for him an annual credit of 50,000 maravedis." Dr. Chanca is given the credit of having cured Columbus of a malignant fever which had brought him to death's door, and he is also said to have been the first person to write a description of the new world, his contribution taking the form of a report to the Municipal Council of Seville. On his return to Spain he produced his

"Commentum Novum in Parabolis Divi Arnoldi de Villanova," which was published at Seville in 1514. But it was not solely to the members of the medical profession who sailed in his company that Columbus expressed his indebtedness. Paolo dal Pozzo Toscanelli, a famous physician and astrologer of Florence, gave him what is described as excellent advice regarding the possibility of reaching India from the West, and in order to simplify matters likewise presented him with a map showing the course he ought to steer. The value of the Florentine's counsel is open to question, but there was another less pretentious practitioner who undoubtedly was able to render the hero an inestimable service at a turning-point in his career. Discouraged by persistent opposition and well-nigh broken-spirited, Columbus had sought asylum in the convent of Santa Maria della Robida, in Andalusia, whereupon the prior, believing him to be mad, sent for Dr. Garcia Fernandez, an unassuming country surgeon from the neighboring hamlet of Palos do Moguer. Happily the village Galen was a man of discernment. He quickly perceived that his patient was no lunatic but a man of genius, and instead of consigning him to chains and a dungeon, after the fashion of the day, he not only restored him to health by his treatment but also won for him the good will of the prior, who furnished him with means and introduced him at Court. It is generally stated that Columbus died from gout, but Dr. de Ybarra disagrees with the authorities who are responsible for this diagnosis. In his opinion death was due to cardiac complication consequent on chronic rheumatism, and in support of this contention he adduces the testimony of several persons who aver that they saw the dying navigator during the last month of his life and that his body was enormously swollen from the chest downward.—London *Lancet*, November 9.

Examination Papers: Army Medical Department.—The following examples of written questions submitted by a recent examining board to candidates for appointment in the Medical Department in the Army will be of interest to many of our younger readers at this time:

ARITHMETIC.

1. Divide 15 by $\frac{1}{15}$. Multiply by $\frac{1}{45}$, and subtract $\frac{25}{42}$ from the product.
2. Multiply .009 by 90. Divide .009 by 90.
3. A garrison of 450 soldiers have rations for five months only. How many should be detached to make the rations last nine months?
4. Give the metric equivalent of 3 grains; 3 fluidrachms; 3 pounds; 3 quarts; 3 yards.
5. Name and describe briefly four principal kinds of triangles.
6. Which is the larger and by how much, a box 10 x 8 x 6 feet, or a cube of 8 feet?

GEOGRAPHY.

1. Bound the State of Tennessee. What are its principal rivers? Name its capital and its largest cities.
2. Through what States does the Appalachian chain of mountains extend? What and where are the highest elevations?
3. In going from Duluth to Quebec by water, through what lakes and river and canals, and by what States would you pass?
4. What rivers form the principal drainage system of the United States, and into what bodies of water do they flow?
5. What countries border on the Mediterranean Sea.
6. Where is India? How is it governed? Name its principal rivers and cities.

HISTORY AND LITERATURE.

1. Who was Julius Cæsar? When, approximately, did he live? For what was he distinguished?
2. What was Queen Elizabeth's claim to the throne of England? About when did she live? Mention the most important events and writers of her reign.
3. What nations made the earliest settlements in North America, and where were they located?
4. What were the most important events in the career of Benjamin Franklin? When, approximately, did he live?
5. What historians has the United States produced? Mention at least one work of each.
6. Who were the authors of the following works: "Don Quixote," "Faust," "Les Miserables," "The Inferno," "Childe Harolde's Pilgrimage," "Paradise Lost," "Evangeline," "Scarlet Letter," "The Autocrat of the Breakfast Table," "The Spy," "Legend of Sleepy Hollow?"

CHEMISTRY.

1. How may hydrogen be obtained? State its color and odor, and its weight as compared with an equal volume of atmospheric air under similar conditions. What is meant by "similar conditions" in the last sentence?
2. How would you obtain a jarful of carbon dioxid for experimental purposes? How would you recognize that the jar contained carbon dioxid? What is it chemical formula; its molecular weight?
3. What is that which is known popularly under the name of "laughing gas?" What is the formula? How is it prepared?
4. What is an anhydrid? Give the names and chemic formulas of two anhydrids.
5. How is sal ammoniac prepared commercially?
6. What chemic action takes place when copper turnings are heated with sulphuric acid?
7. What are the principal ores of zinc? What is the formula for zinc chlorid; for zinc sulphate?
8. What is glycerin chemically?
9. Explain the chemic action which takes place when gunpowder is exploded.

PHYSICS.

1. Does a given body weigh more near the poles of the earth or near the equator? Give an explanation of the fact.
2. Explain the principle of the hydraulic press.
3. What is meant by a compensating pendulum?
4. What is the dew point? How may it be determined?
5. What are the dark lines of the solar spectrum occasioned by?
6. An observer saw the flash of an explosion, and ten seconds later the sound reached his ears: What was his distance, approximately, from the locality of the explosion?
7. Describe a cell of an electric battery.

ANATOMY.

1. Describe the origin, insertion and action of the several muscles attached to the scapula.
2. Describe the origin, courses, branches, distribution and relations to other organs of the nerves of the arm and forearm.
3. Describe the anatomy of the palm of the hand.
4. Describe the origin, course, branches, distribution and relation to other organs of the internal pudic artery.
5. Describe the anatomy of the ankle joint.

PHYSIOLOGY.

1. Tell what you know about the cerebral localization of the functions of motion and locate some of the so-called motor areas.
2. What are the functions of the thyroid gland and the consequences of its removal?
3. What is the composition of atmospheric air and of expired air?
4. Give a list and a short description of some of the animal albuminoids.
5. What is urea? What is the normal quantity in proportion to body weight? How is it estimated?

SURGERY.

1. Give in detail the preparation and several following steps of a so-called aseptic surgical operation.
2. What is the nature and origin of pus? What is sepsis and also antisepsis?
3. Describe Chopart's amputation through the foot, with diagram.
4. Give the points of diagnostic differentiation in cases of lupus ulceration, syphilitic ulceration and epitheliomatous ulceration.
5. Describe the different methods of procedure for the reduction of luxations of the head of the femur.

HYGIENE.

1. What is the normal amount of CO_2 in the atmosphere: how much of this gas is considered admissible in inhabited apartments, and how is the amount determined?
2. What amount of cubic-air space per bed would you consider a suitable allowance in a hospital ward?
3. What substances in well or river water indicate by their presence, contamination from excreta or other organic matter of animal origin.
4. How is the hardness of water eliminated and to what is it due?

5. What are the constituent alimentary substances in milk, and how does cow's milk differ from human milk?
6. What vegetable products used as food contain the largest proportion of carbohydrates and what the largest proportion of proteids?
7. What parasites dangerous to man may be present in the flesh of animals used as food?
8. How would you disinfect the excreta of patients sick with cholera or typhoid fever?

PATHOLOGY AND BACTERIOLOGY.

1. What are the different stages of exudative inflammation and what the products of such inflammation?
2. What are the causes of thrombosis, what the composition and varieties of thrombi, and what changes may they undergo?
3. What pathologic changes are found in the spinal cord in posterior spinal chlorosis?
4. What changes occur in the liver as a result of chronic interstitial hepatitis?
5. What bacteria are commonly found attached to the diseased valves in mycotic endocarditis?
6. What are the morphologic and biologic characters of the bacillus of diphtheria, and what are the evidences of its etiologic relation to this disease?

THERAPEUTICS, MATERIA MEDICA, TOXICOLOGY.

1. By what various agents may antipyresis be produced? Give an example of each class of antipyretics and state how it acts.
2. In a case of typic acute pleurisy state the indications for treatment in its several stages and how *you* would meet them.
3. What is salol? Give its physiologic action and therapeutic use?
4. Give the source and therapeutic uses of cocain, the dose in each case, and its dangerous effects.
5. With what condition is poisoning from opium most likely to be confounded? How would you make a diagnosis and how treat such a case?
6. What are the poisonous effects of the lead salts? How is their presence detected? State briefly *your* plan of treatment.

PRACTICE OF MEDICINE.

1. Give an account of the etiology, symptoms, physical signs and differential diagnosis of lobular pneumonia.
2. Give an account of the etiology, physical signs and treatment of empyema.
3. Give an account of the etiology, symptoms, differential diagnosis and treatment of dilatation of the stomach.
4. What are are the causes and symptoms of intestinal obstruction and what is the treatment?
5. What are the causes and results of mitral stenosis and how would you recognize this condition?
6. Give the differential diagnosis between smallpox and measles.

OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

1. Describe briefly the usual mechanism of a breech presentation; what dangers are to be guarded against and what difficulties to be met.
2. Under what circumstances is premature delivery demanded and how would you perform it?
3. What symptoms would lead you to suspect the presence of a uterine fibroid? State how an exact diagnosis can be made in such cases.
4. What measure preventive or remedial would you use in a case of puerperal convulsions?
5. What early symptoms indicate probable onset of the chief eruptive fevers in children? In which does temperature range highest; which has the shortest period of incubation, of invasion, of eruption.

Foreign Bodies in the Abdominal Cavity.—Dr. T. S. Bullock has handled this subject quite adroitly in a paper read before one of the Louisville societies. He has been enabled to corral over fifty cases, chiefly American in origin, and largely unreported in the journals, from which experience he deduces the doctrine "Let the surgical Pharisee who is tempted to say, 'I am holier than thou,' beware." In consonance with this teaching is presented the remarkable experience of an honored surgeon in New York City, which was somewhat as follows: Early in his practice, this surgeon had a lesson that led him to adopt every well-considered precaution against leaving any foreign bodies in the abdominal cavity after operating. On one occasion, so careful had he become, he thrice reopened the wound in order to search for a missing sponge, which turned up in a pail. After this he made it a point never to put a fresh sponge in the cavity until its predecessor had been removed, and then, if possible to keep it under his own eye. He went on in this way for seven or eight years, and says he had begun to think this accident would never happen in his practice; but it did, and when he least expected it. In a simple salpingotomy four gauze pads were used, and although all were accounted for by a most conscientious nurse and two assistants before the sutures were tied, one was left behind. Subsequently a mural abscess developed at the upper angle of the wound, and on opening it the pad presented itself and was removed, the patient making a good recovery. Dr. Bullock reports his own case which hinged on the losing of a large-sized aseptic gauze pad due to a miscount of the pads by a trusted nurse. This misadventure made necessary an operation for the removal of the pad; the patient recovered. Regarding the prognosis in these accidents, the author of the paper finds that much will depend: 1. On whether and when the accident is discovered. If the wound has been closed, it should be reopened and the foreign body removed. If not more than twenty-four or forty-eight hours have elapsed, the case will in all probability proceed as if the accident had not occurred. 2. If not discovered so soon, whether a correct diagnosis is subsequently made. If so, the body should be removed at once, this procedure giving the patient the best possible chance and saving tedious convalescence and much danger and discomfort. If the diagnosis is not made, Nature takes charge of the case, and unless the foreign body is septic, her efforts are generally crowned with success. 3. Whether the body left is aseptic or not. The case just cited shows what methods are employed when the object overlooked is aseptic and nature is not at once overwhelmed. Twenty-one cases reported by Dr. Wilson in 1884, which occurred in pre-aseptic days, with a single exception, died. If the operation is aseptic, the chances of the patient are by no means hopeless as to ultimate recovery. The larger number of the reported cases have ultimately expelled the foreign body and made a good, if slow, recovery. A. McLauren reported seven in 1896, with only one death. 4. If the body left is an instrument, as a forceps or clamp, unless discovered and immediately removed, death invariably ensues, and if found at all, it is at the postmortem. Their weight is too great a handicap for even so good a jockey as Nature, and she is unable to transport them to a suitable place for safe expulsion. I will now report my own case, which affords an additional opportunity for observing our good friend Nature's methods, and call attention to several important diagnostic points, should the accident not be promptly discovered and remedied. The author quotes a remark made by Dr. Coe, who said regarding the inevitable tendency of these accidents to go unreported: "We must not be surprised that only a small proportion of the cases are reported, as it is natural for us to seek to conceal our errors and failures, forgetting that these would be more valuable contributions to medical literature than a long series of successes; and that if we can learn from the mistakes of others, the experience is less costly than when gained by our own mishaps." Up to the present time those of our profession thus philanthropically inclined are in a very small minority. Our brother surgeon is too prone to think aloud some criticism that subsequently makes large drafts on his ingenuity to enable him to escape being arrayed against his friend on the witness stand in the suit filed because of his adverse comment. All hail the day when the medical profession shall face the world as a unit and not as at present—every man for himself, and the devil take the other fellow.—*Am. Prac. and News*, October 15.

Detroit.

APPOINTMENTS.—Dr. J. E. Clark has been appointed by the auditors of Wayne County as the official chemist, at a salary of $1000 a year. It will be his duty to make all analyses of material in cases where death by poison is suspected and chemic analysis of stomach contents is ordered by the court.

HEALTH REPORT.—For the week ending December 17, there were reported: Deaths, 75; under 5 years, 24; births, 55, male, 29, female, 26; number of cases of diphtheria, last report, 14, new cases 17, recoveries 9, deaths 1, now sick, 21; scarlet fever, last report, 42, new cases 18, recoveries, 14, no deaths, now sick, 46; smallpox, 1 case.

Cincinnati.

A TIMELY GIFT.—The University of Cincinnati, of which the Ohio Medical College is the medical department, has recently been the recipient of a most valuable library of books from Mr. William A. Proctor. Mr. Proctor purchased outright "The Robert Clarke Collection" of over six thousand volumes, covering a large variety of subjects, and which is estimated to be worth more than $100,000. The collection was given practically without condition. It is a most timely gift, as the new library building donated by Van Wormer will soon be up, and this gift will doubtless stimulate others to contribute. Indeed, in a discussion of the Board, convened to take action on Mr. Proctor's magnificent donation, several enthusiastic members spoke freely of large gifts of books to be made in the near future.

SMALLPOX.—An epidemic of smallpox recently broke out in Wyoming, but a few miles from Cincinnati. Dr. Probst, secretary of the Ohio State Board of Health, and Dr. Byron Stanton, Cincinnati member, diagnosed the cases as smallpox, however, of a very mild type. It was decided by these officials, in consultation with the local health officer, that a general qucrantine would be disastrous to business interests, so that a local quarantine of the districts and houses to which the disease has been confined, preventing ingress and egress of all who had been exposed, was substituted. As regards Cincinnati, Health Officer Tenney directed a general vaccination among school children in both the common and parochial schools, all who are unable to afford the expense to be vaccinated by the district physicians, free of charge. It is supposed that the contagion was conveyed from the cases at Loveland.

DR. PERCY ASHBURN successfully passed the examination for assistant-surgeon, U. S. A., and was one of three successful candidates in a class of twenty five.

Louisville.

KENTUCKY SCHOOL OF MEDICINE.—Some weeks ago it was noticed in these columns that Judge Barker had granted Drs. Woody and Kelly, respectively dean and professor in the Kentucky School of Medicine, an injunction restraining Drs. Cochran and Boyd from claiming to be professors in the school, and Dr. W. H. Wathen from claiming to be dean. At a meeting of the Board of Regents of the College, held a short time before, it had been decided that Drs. Woody and Kelly should be removed; they at once took this action and elected Drs. Cochran and Boyd in their places and Dr. Wathen as dean to succeed Dr. Woody. Because of the fact that Judge Miller, before whom the case was docketed, had been an attorney for Dr. Wathen, and his law partners were at present his attorneys, Drs. Woody and Kelley asked that he not hear the case, and through their attorney attempted to swear him off the bench. He refused to vacate the bench, and the case as to whether the injunction should be dissolved or not was submitted on briefs, and he has just handed down his opinion, which is a voluminous one. He dissolves the injunction granted Drs. Woody and Kelly, and dismisses their petition. The attorney for Drs. Woody and Kelly at once filed a motion of appeal, and Judge Miller will hear an argument as to whether the injunction shall be continued in force pending the appeal. The charter of the Kentucky School conferred upon the Board of Regents the power to remove professors. The plaintiffs claimed that by an amendment of March 25, 1886, the Legislature modified this power to the extent of requiring a majority of the members of the faculty to request the removal. That amendment also named the professors of the school, among them being Drs. Woody and Kelly. On August 1, last, as above mentioned, the Board of Regents, without the action of the faculty, removed Drs. Woody and Kelly from their professorships, and elected Dr. Wathen as dean. The latter's claim to a professorship was not questioned, only his claim to being dean. Judge Miller held that the amendment of 1886 was not accepted by the Kentucky School of Medicine and was of no effect, and that the Board of Regents had acted within the powers conferred by the original charter.

DENTISTS.—The Falls City Dental Club and the Louisville Odontological Society held their first joint meeting on December 10 at the building of the Louisville College of Dentistry. About fifty-five members of the two organizations were in attendance. A number of papers were read and at the conclusion an enjoyable banquet was given. The officers of the two organizations were as follows: Odontological Society, J. W. Clark, president; P. R. Feigel, vice-president; F. J. Gardner, secretary-treasurer. Dental Club: C. G. Edwards, president; E. M. Kettig, vice president; C. K. Runyon, secretary-treasurer.

THE PUBLIC SERVICE.

Movements of Army Medical Officers.—To Manila, P. I.: Lieut. Irving W. Rand, asst.-surgeon U. S. A., from Ft. Duchesne, Utah.

To military posts: To Columbus Bks., Ohio, Capt. Jefferson D. Poindexter, asst.-surgeon U. S. A., from Ft. Hamilton, N. Y., to Jefferson Bks., Mo., Acting Asst.-Surgeon Llewellyn P. Williamson from St. Louis, Mo.; to Ft. Riley, Kan., Acting Asst.-Surgeon F. A. Disney from Washington, D.C.; to Ft. Sam Houston, Texas, Major Charles L. Heizmann, surgeon U.S.A., from Ft. Adams, R. I.

To regiments: Lieut. Leigh A. Fuller, asst.-surgeon U. S. A., to the Second U. S. Artillery at Savanah, Ga.; Acting Asst.-Surgeons Elmer Anderson Dean and Arthur W. Smith to the Third U.S. Infantry at Ft. Snelling, Minn., from the general hospital at Ft. Thomas, Ky.; Acting Asst.-Surgeon A. M. Fernandez de Ybarra to the Third U.S. Vol. Engineers at Tampa, Fla.; Acting Asst.-Surgeon W. H. Spiller to the U.S. transport *Mohawk* at Bath, Maine.

To general hospitals: Acting Asst.-Surgeon J. Herbert from Washington, D. C., to the hospital at Ft. McPherson, Ga.

To mustering-out duty: Acting Asst.-Surgeon Matthew Leepere from the John Blair Gibbs hospital, Lexington, Ky., for duty in that city.

To special service: Capt. Thomas U. Raymond, asst.-surgeon U. S. A., as superintendent Army transportation service at San Francisco, Cal.

Leave granted or extended: Major David C. Peyton, brigade surgeon, Vols. from Philadelphia, Pa.; Capt. Benjamin L. Ten Eyck, asst.-surgeon U. S. A., from Ft. Riley, Kan.; and Acting Asst.-Surgeon Azel Ames from Porto Rico.

Sick leave granted or extended: Major Philip G. Wales, brigade surgeon Vols.; Major H. Wells, surgeon Second Arkansas Infantry; and Acting Asst.-Surgeon Henry R. Carter.

Honorably discharged: Major R. Emmit Griffin, chief surgeon Vols.

Resignation revoked: Lieut. John W. Cox, asst.-surgeon Sixth U. S. Vol. Infantry.

Retired from active service: Lieut.-Col. William H. Gardner, deputy Surgeon-General U. S. A., after thirty years' service.

Contract annulled: Acting Asst.-Surgeon Donald Maclean, Jr., of Detroit, Mich.

CHANGE OF ADDRESS.

Burkhart, L., from 582 to 1134 South Meridian St., Indianapolis, Ind.
Cale, G. W., from Pittsburg, Kans., to Springfield, Mo.
Hanley, J. J., from Boston to Rock Island, Mass.
Jackson, G. E., from Wheaton, to Chatfield, Minn.
Jordan, A., from Gaines Mill to 117 Broad St., Richmond, Va.
Knapp, M. S., from Fenton to Flint, Mich.
Kengla, L. A., from 1305½ Polk to 1121 Sutter St., San Francisco, Cal.
Lamb, D. H., from Owosso, Mich., to Fort Myer, Va.
Mereness, H. D., from Carnarvon to Thompson, Ia.
Miracle, W. T., from Long Creek to Richland, Ore.
Richards, C., from 321 Belmont to 259 Prospect St., Fall River, Mass.
Sheddan, W. K., from Williamsport to Columbia, Tenn.
Smith, H. H., from Beatrice to San Diego, Calif.
Thrailkill, G. H., from Central City, Colo., to Galena, Kans.

LETTERS RECEIVED.

American Therapeutic Co. (2), New York City; Aldrich, W. H., Marlboro, N. H.; Ayer & Son, N. W. (2), Philadelphia, Pa.

Baldessarelli, P., San Antonio, Tex.; Burr, C. B., Flint, Mich.; Bischoff & Co., New York, N. Y.

Carson, A., Elliott, Ia.

Dewey, C. R., Coloma, Mich.; Dios Chemical Co., St. Louis, Mo.; Davol Rubber Co., Providence, R. I.; Denkinger, J. A., Boston, Mass.

Erwin, J. J., Cleveland, Ohio; Erwin, A. J., Mansfield, Ohio; Edison Mfg. Co., New York, N. Y.

Fort, I. A., North Platte, Neb.; Farwell & Rhines, Watertown, N. Y.

Gilpin, Langdon & Co., Baltimore, Md.; Goodrich Co., The B. F., Akron, Ohio; Green, Dr. E. M., Louisville, Ky.

Hicks, Wm., New York, N. Y.; Hyde, Geo. B., Silao, Mex.; Hill, Edgar A., Chicago, Ill.; Huber, Frank, Brooklyn, N. Y.; Hall & Co., N. C., New York, N. Y.; Hull & Co., W. H. H., New York, N. Y.; Hummel, A. L. Advertising Agency, New York, N. Y.

Jelks, J. T., Hot Springs, Ark.

Kress & Owen Co., New York, N. Y.; Kell, J. B., Limaville, Ohio.

Lord & Thomas, Chicago, Ill.; Lautenbach, L. J., Philadelphia, Pa.; Lee, Elmer, New York, N. Y.; Lilly & Co., Eli, Indianapolis, Ind.

Meyer & Co., C., New York, N. Y.; Merrell Chemical Co., W. S., Cincinnati, Ohio; Martin, J. W., Unionport, Ohio; Maltine Mfg. Co., New York, N. Y.; Monthly Retrospect of Medicine and Pharmacy, Philadelphia, Pa.; Malt-Diastase Co., New York, N. Y.; Mariani & Co., New York, N. Y.; McKenzie, C. D., Sabina, Ohio; Mellin's Food Co., Boston, Mass.

Norwich Pharmacal Co., Norwich, N. Y.; Negelspach, Otto, Holmesville, Ohio.

Owens, J. M., Somerset, Ky.; Osborne, J. W., Dyersville, Iowa; Osborn, O. O., Chicago, Ill.

Peacock Chemical Co., St. Louis, Mo.; Phenique Chemical Co., St. Louis, Mo.; Parke, Davis & Co. (2), Detroit, Mich.; Peck, H. H., Chicago, Ill.; Pope Manufacturing Co., Hartford Conn.

Rorick, E. H., Athens, Ohio; Rea, E. H., Irondale, Ohio; Robinson, L. A., Glenwood Springs, Colo.; Rumford Chemical Works, Providence, R. I.

Saunders, N. J., Cawker City, Kans.

Tucker, C. F., Syracuse, N. Y.

Viskolein Company, New York, N. Y.

Williams Co., The J. B., Glastonburry, Conn.; Wampole & Co., H. K., Philadelphia, Pa.; Woldert, A., Philadelphia, Pa.; Wardner, H., La Porte, Ind.; Weeks Drug and Chemical Co., Jackson, Mich.; Wells, W. S., Tiffin, Ohio; Western Medical Supply Co., Chicago, Ill.